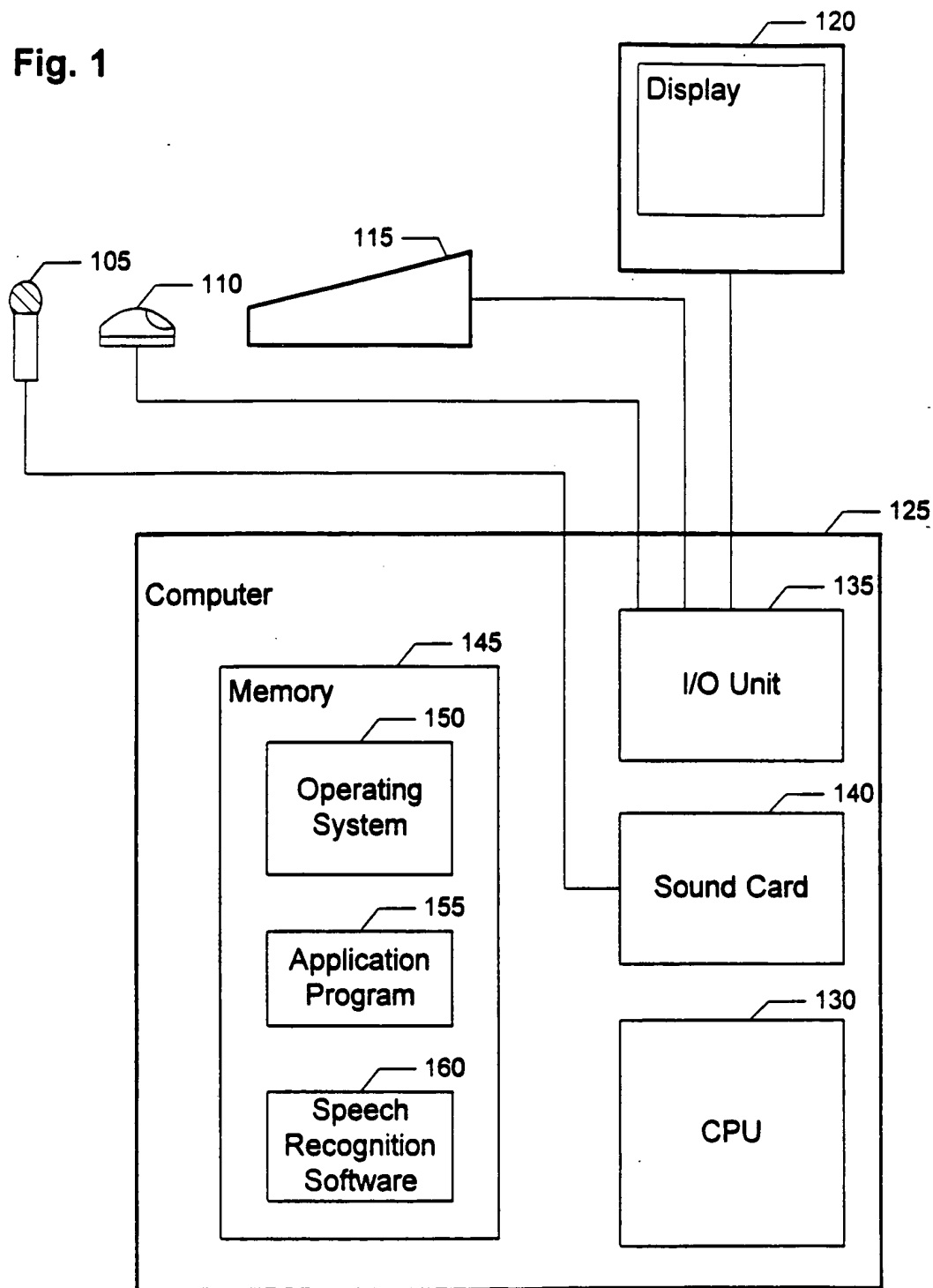


Fig. 1



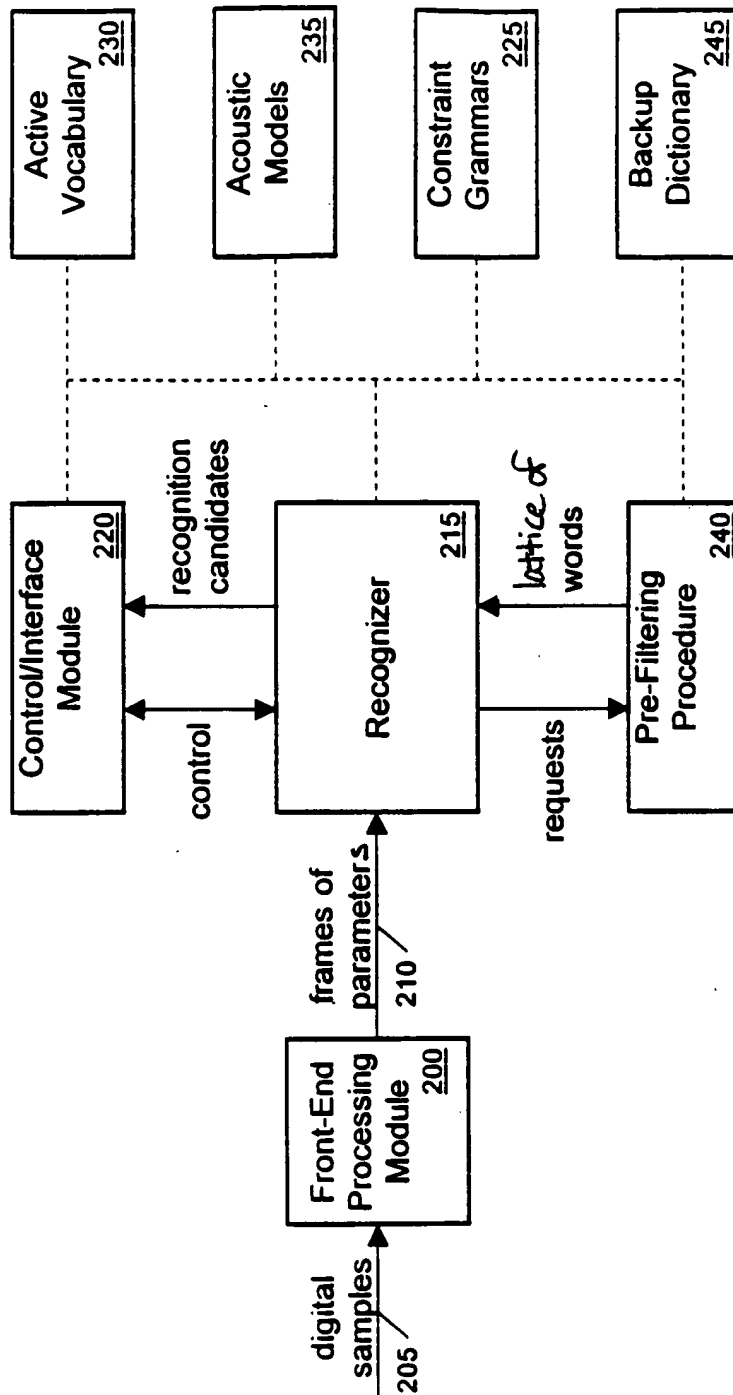


Fig. 2

300

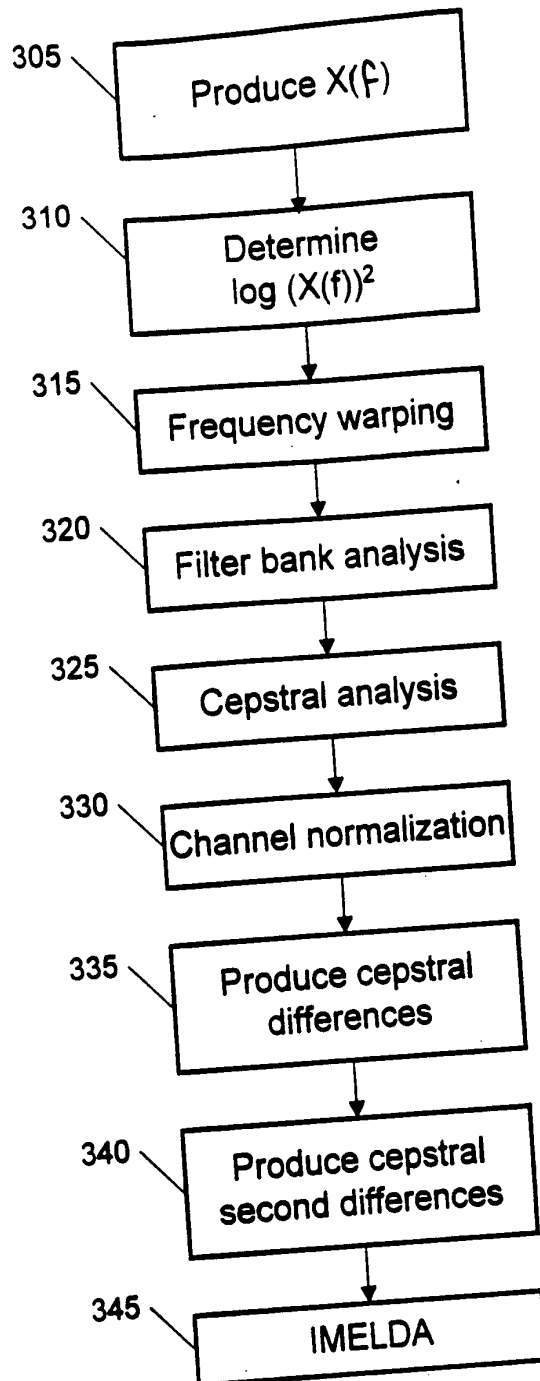


Fig. 3

662063"04E06E6D

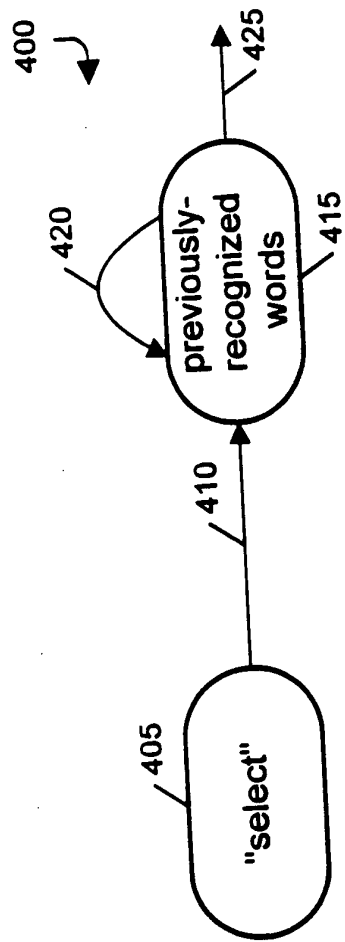


Fig. 4A

450

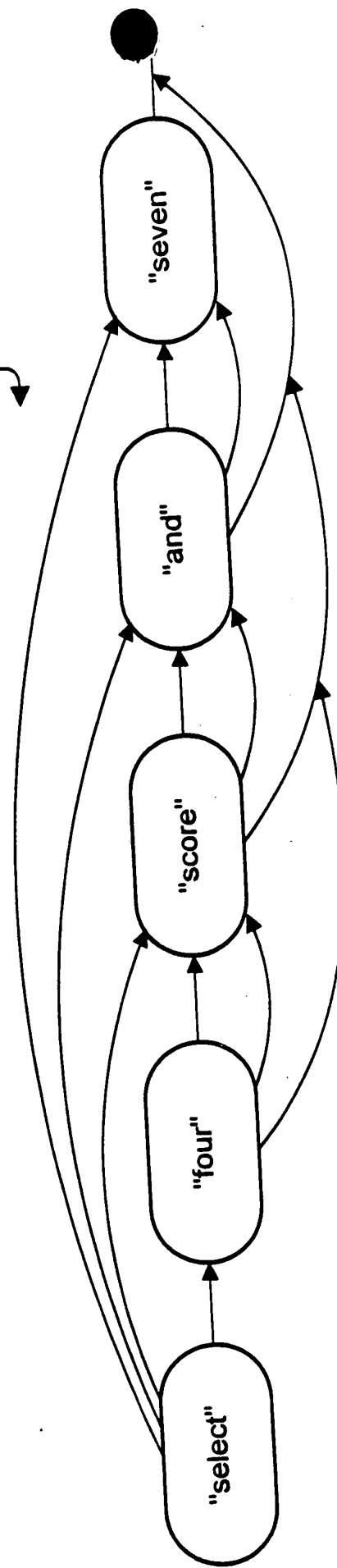
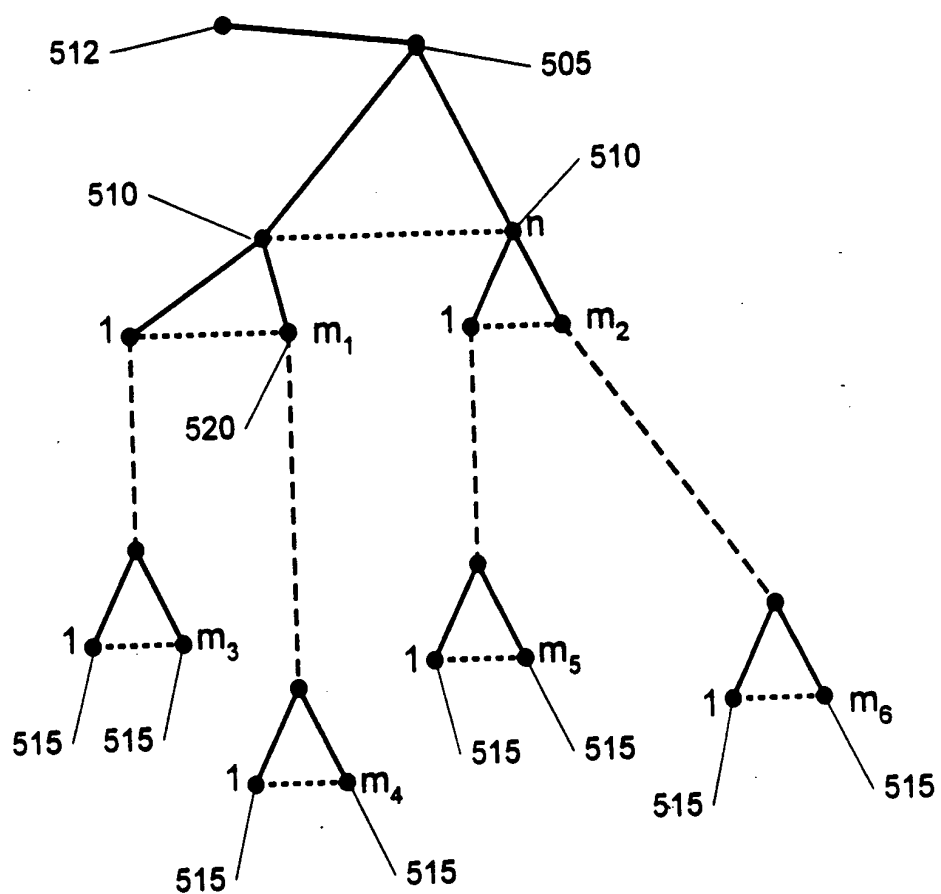


Fig. 4B

662060-920620

500

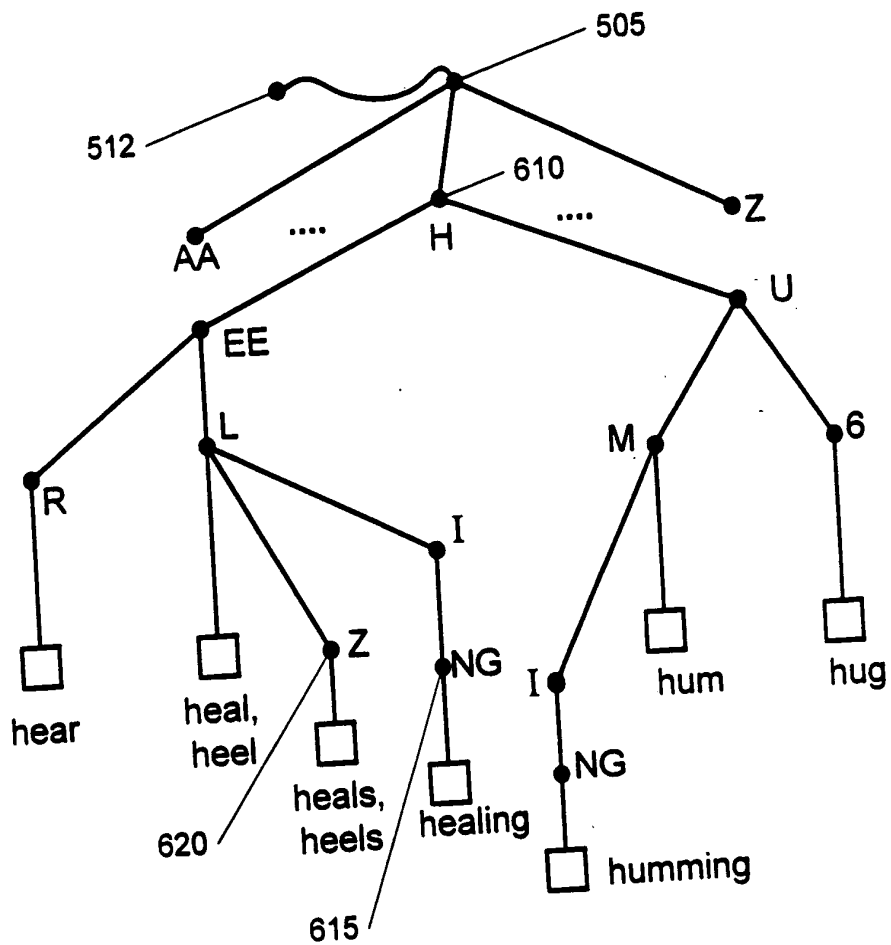
Fig. 5



600



Fig. 6



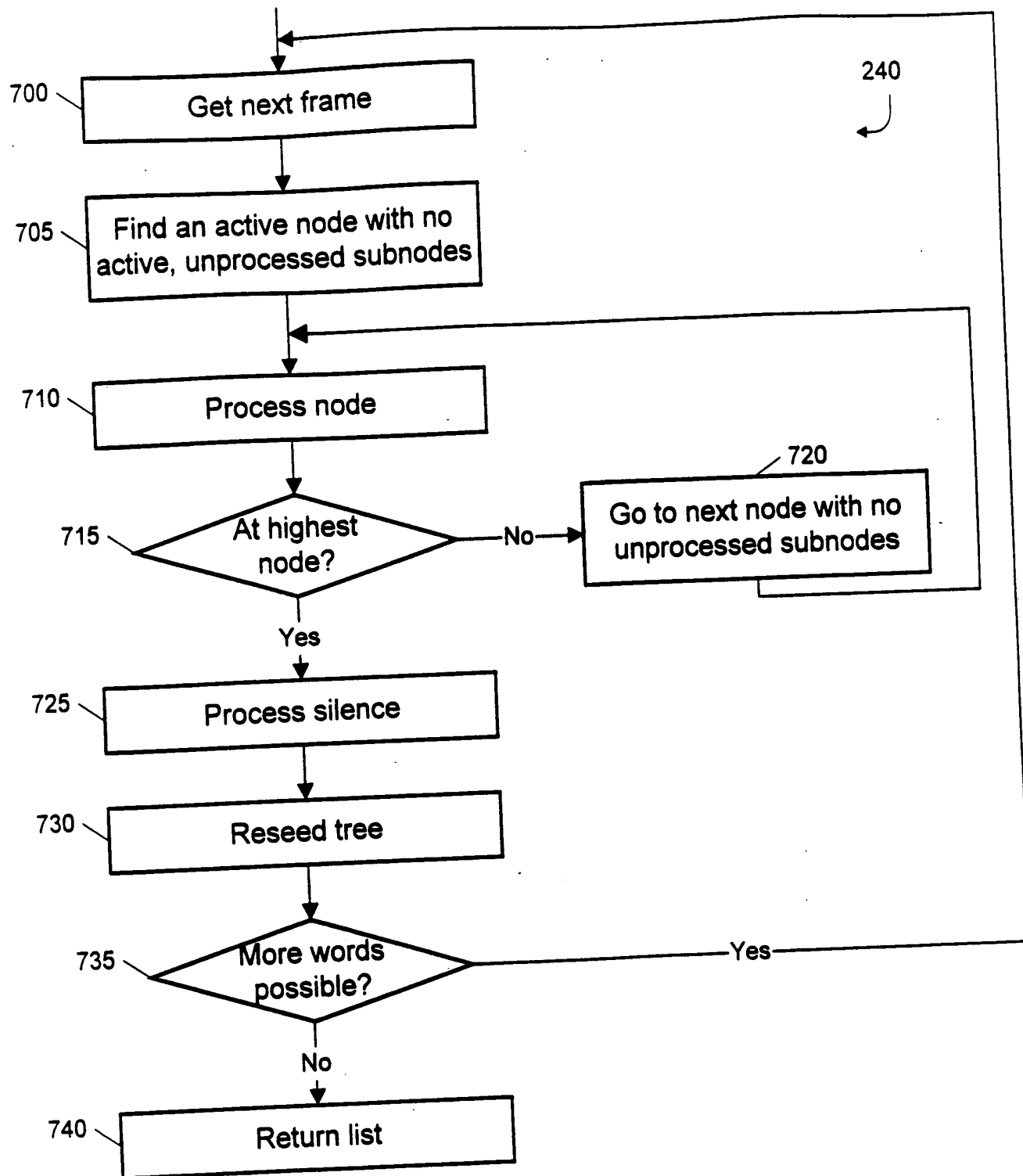


Fig. 7

662060" 0/E06E60

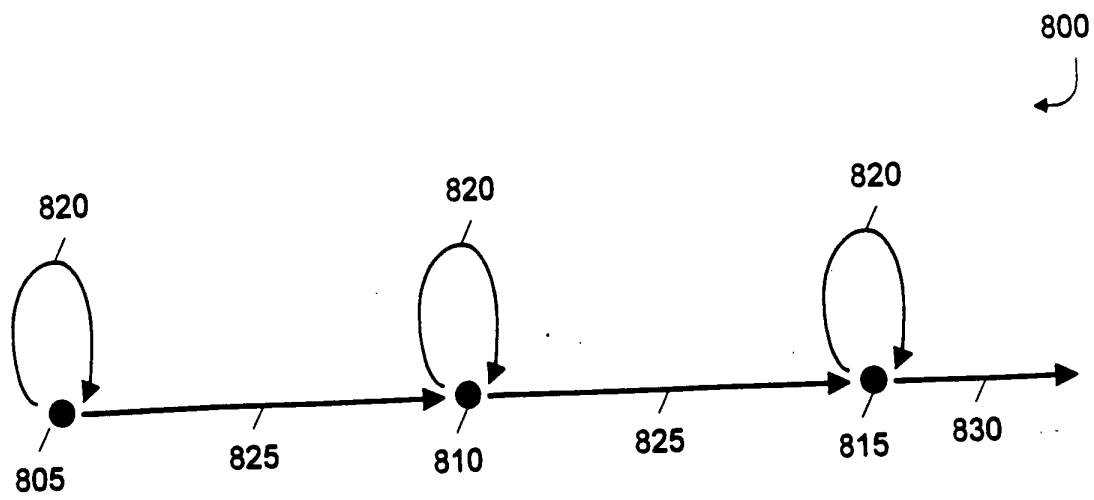


Fig. 8A

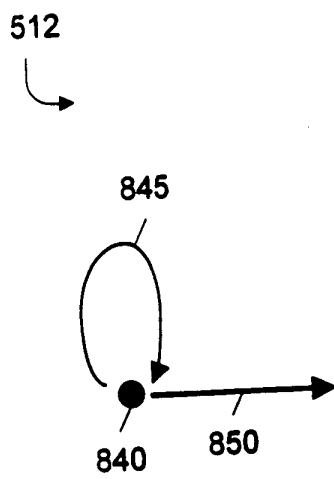


Fig. 8B

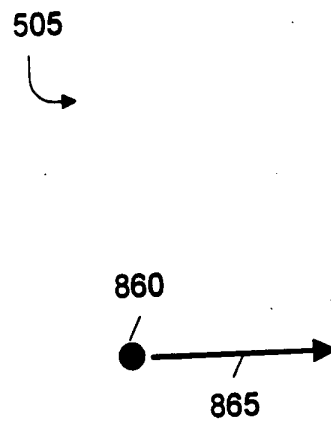


Fig. 8C

Frame	840 ("A")	805 ("B")	810 ("C")	815 ("D")	Next Node ("N")
900 — 0	0	---	---	---	---
905 — 1	$S_{A1} = A_{A1}$	$S_{B1} = A_{B1}$	---	---	---
910 — 2	$S_{A2} = S_{A1} + A_{A2}$	$S_{B2} = \min(S_{B1} + \text{stay}_B, S_{A1}) + A_{B2}$	$S_{C2} = S_{B1} + \text{leave}_B + A_{C2}$	---	---
915 — 3	$S_{A3} = S_{A2} + A_{A3}$	$S_{B3} = \min(S_{B2} + \text{stay}_B, S_{A2}) + A_{B3}$	$S_{C3} = \min(S_{C2} + \text{stay}_C, S_{B2} + \text{leave}_B) + A_{C3}$	$S_{D3} = S_{C2} + \text{leave}_C + A_{D3}$	---
920 — 4	$S_{A4} = S_{A3} + A_{A4}$	$S_{B4} = \min(S_{B3} + \text{stay}_B, S_{A3}) + A_{B4}$	$S_{C4} = \min(S_{C3} + \text{stay}_C, S_{B3} + \text{leave}_B) + A_{C4}$	$S_{D4} = \min(S_{D3} + \text{stay}_D, S_{C3} + \text{leave}_C) + A_{D4}$	$S_{N4} = S_{D2} + \text{leave}_D + A_{D4}$
925 — n	$S_{An} = S_{An-1} + A_{An}$	$S_{Bn} = \min(S_{Bn-1} + \text{stay}_B, S_{An-1}) + A_{Bn}$	$S_{Cn} = \min(S_{Cn-1} + \text{stay}_C, S_{Bn-1} + \text{leave}_B) + A_{Cn}$	$S_{Dn} = \min(S_{Dn-1} + \text{stay}_D, S_{Cn-1} + \text{leave}_C) + A_{Dn}$	$S_{Nn} = \min(S_{Nn-1} + \text{stay}_M, S_{Mn-1} + \text{leave}_M) + A_{Nn}$

Fig. 9

Frame	810 ("A")	805 ("B")	810 ("C")	815 ("D")	Next Node ("N")
900 — 0	$S_{A0} = 0$	---	---	---	---
905 — 1	$S_{A1} = f(S_{A0}, A_{A1})$	$S_{B1} = f(S_{A0}, A_{B1})$	---	---	---
910 — 2	$S_{A2} = f(S_{A1}, A_{A2})$	$S_{B2} = f(S_{B1}, \text{stay}_B, S_{A1}, A_{B2})$	$S_{C2} = f(S_{B1}, \text{leave}_B, A_{C2})$	---	---
915 — 3	$S_{A3} = f(S_{A2}, A_{A3})$	$S_{B3} = f(S_{B2}, \text{stay}_B, S_{A2}, A_{B3})$	$S_{C3} = f(S_{C2}, \text{stay}_C, S_{B2}, \text{leave}_B, A_{C3})$	$S_{D3} = f(S_{C2}, \text{leave}_C, A_{D3})$	---
920 — 4	$S_{A4} = f(S_{A3}, A_{A4})$	$S_{B4} = f(S_{B3}, \text{stay}_B, S_{A3}, A_{B4})$	$S_{C4} = f(S_{C3}, \text{stay}_C, S_{B3}, \text{leave}_B, A_{C4})$	$S_{D4} = f(S_{D3}, \text{stay}_D, S_{C3}, \text{leave}_C, A_{D4})$	$S_{N4} = f(S_{D3}, \text{leave}_D, A_{D3})$
925 — n	$S_{An} = f(S_{An-1}, A_{An})$	$S_{Bn} = f(S_{Bn-1}, \text{stay}_B, S_{An-1}, A_{Bn})$	$S_{Cn} = f(S_{Cn-1}, \text{stay}_C, S_{Bn-1}, \text{leave}_B, A_{Cn})$	$S_{Dn} = f(S_{Dn-1}, \text{stay}_D, S_{Cn-1}, \text{leave}_C, A_{Dn})$	$S_{Nn} = f(S_{Dn-1}, \text{leave}_N, A_{Nn})$

Fig. 10

562000200000

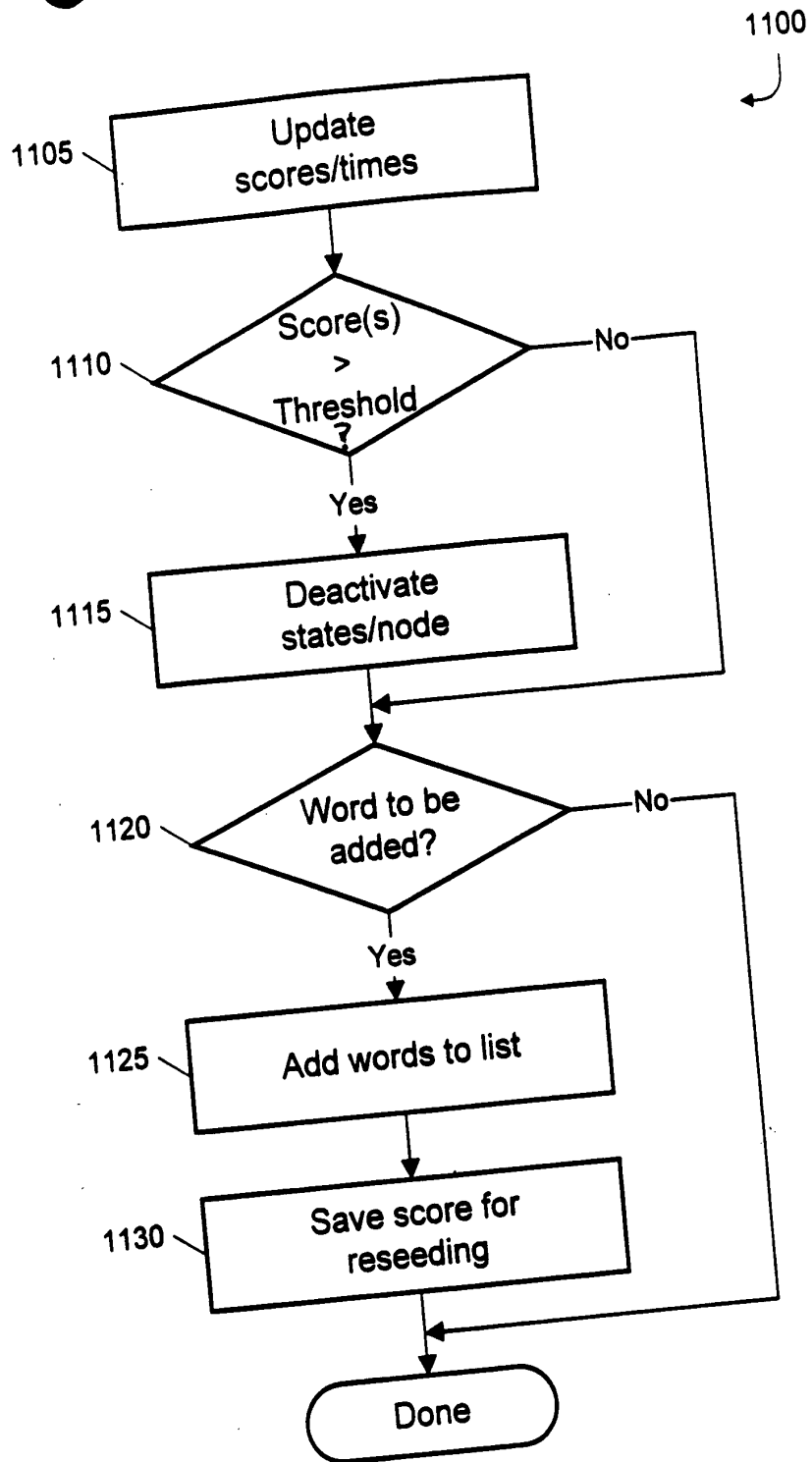


Fig. 11

1200

Fig. 12

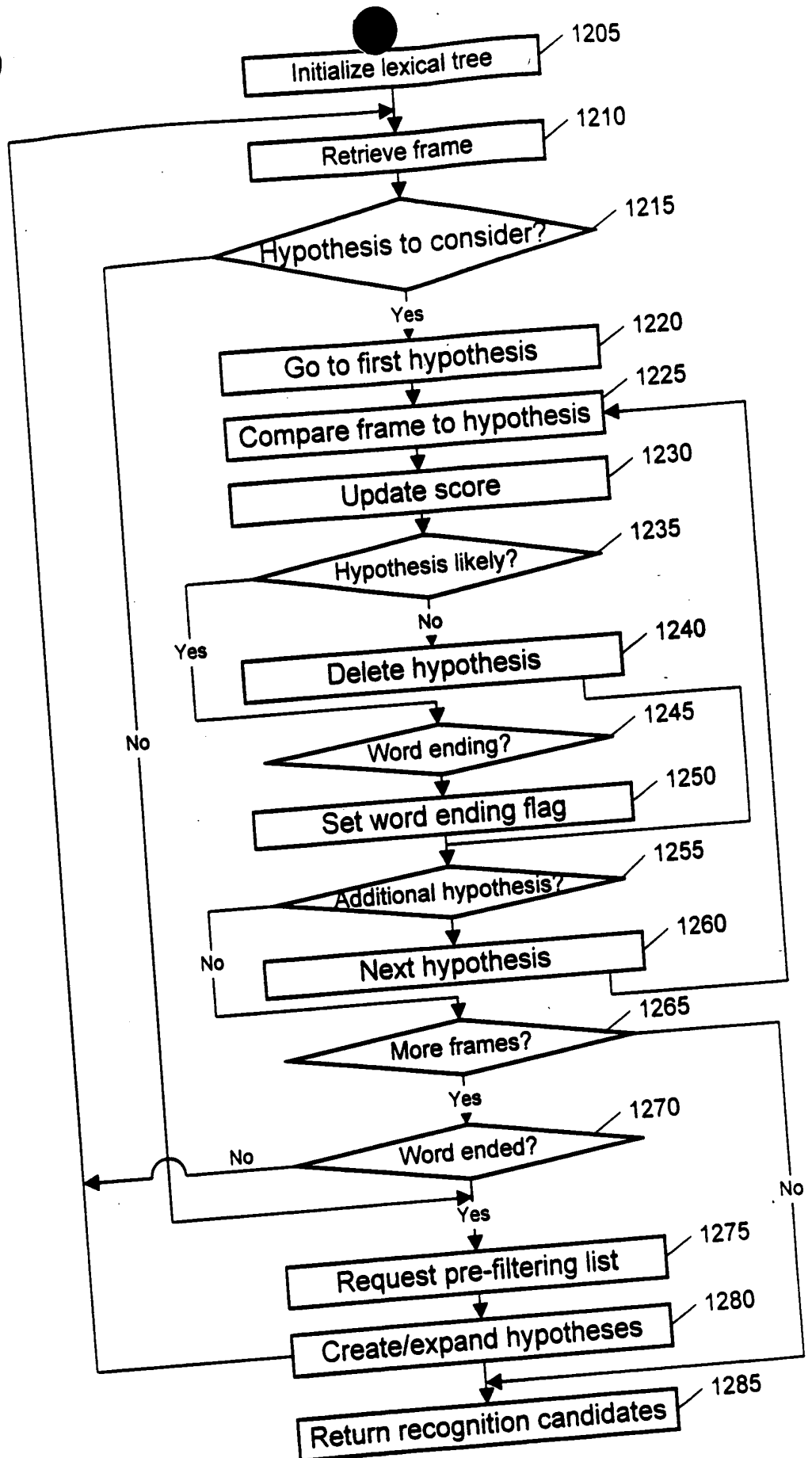


Fig. 13A

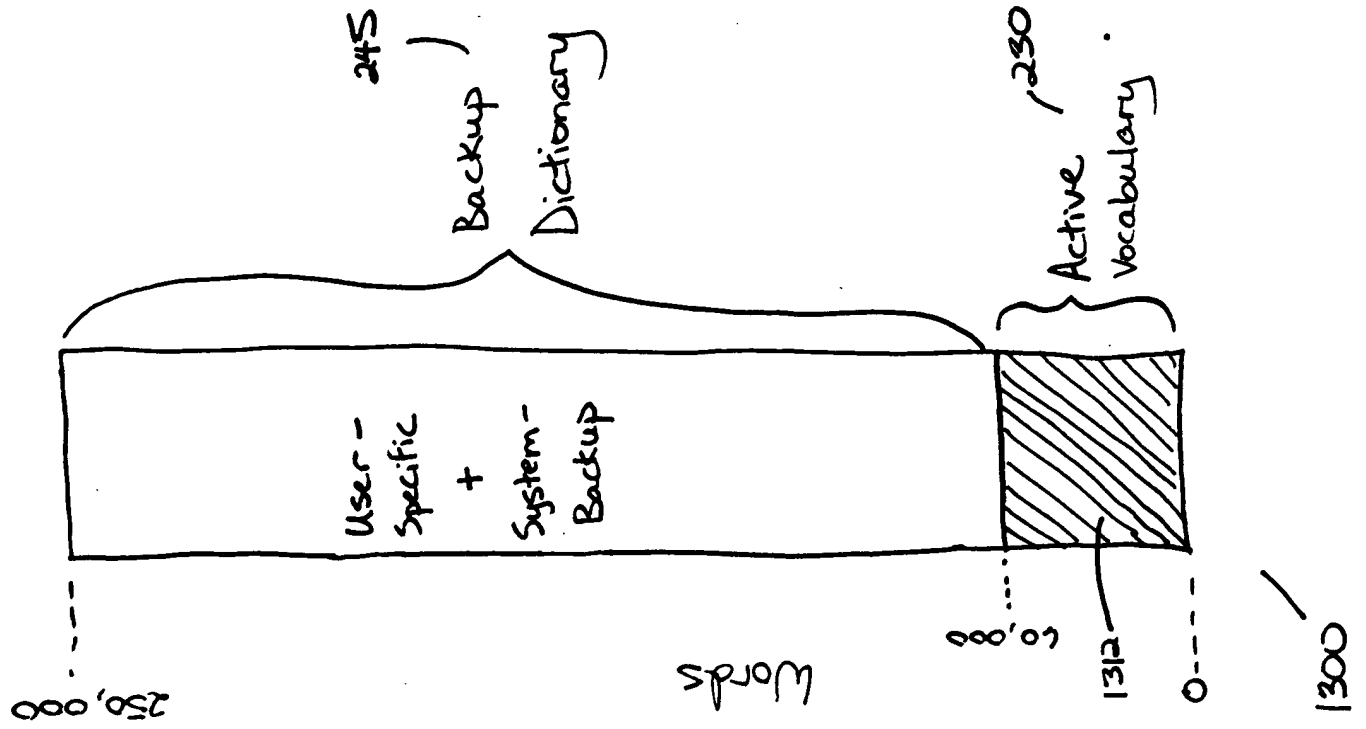
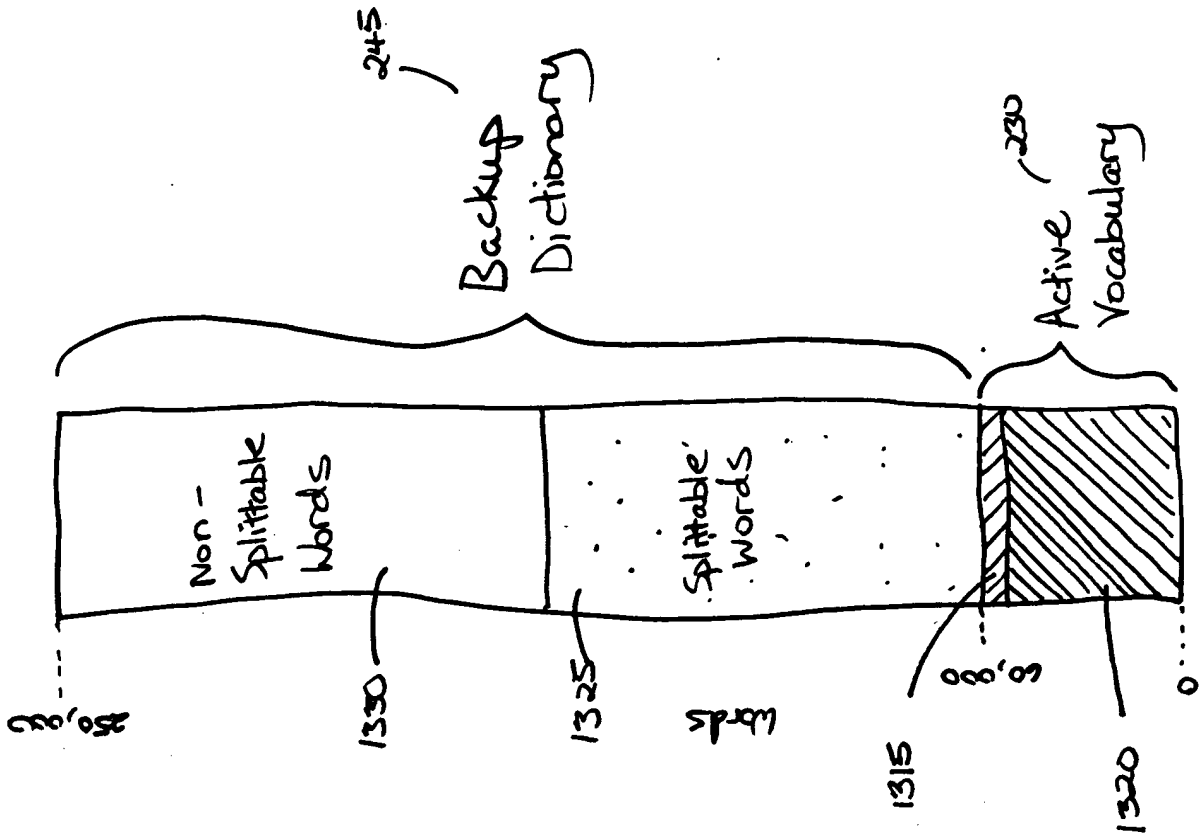


Fig. 13B



662060" 11:44:56.00

Fig. 14A

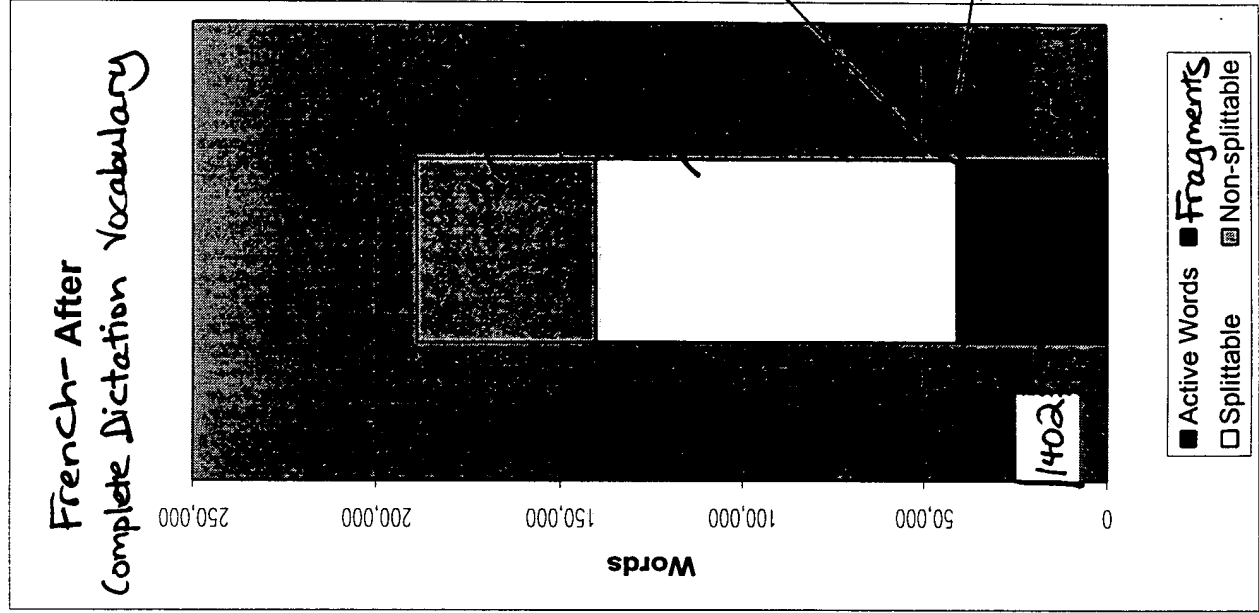
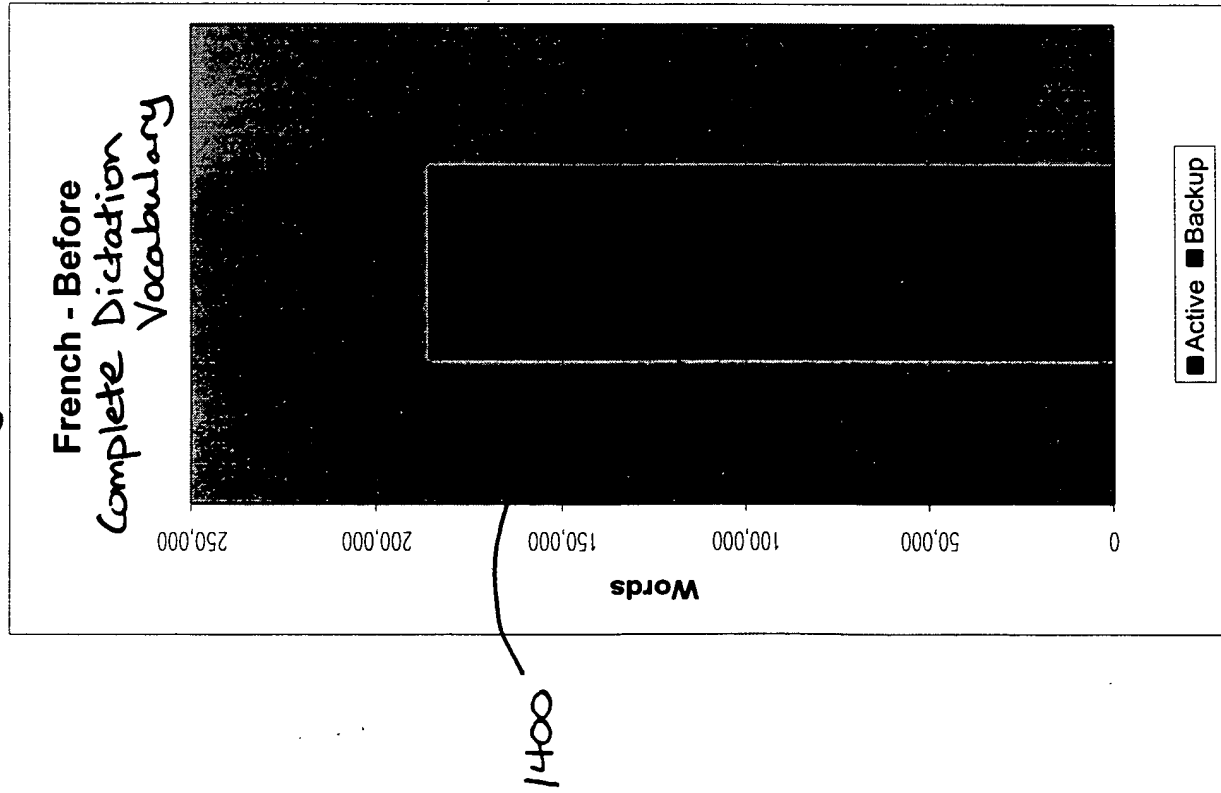


Fig. 14C

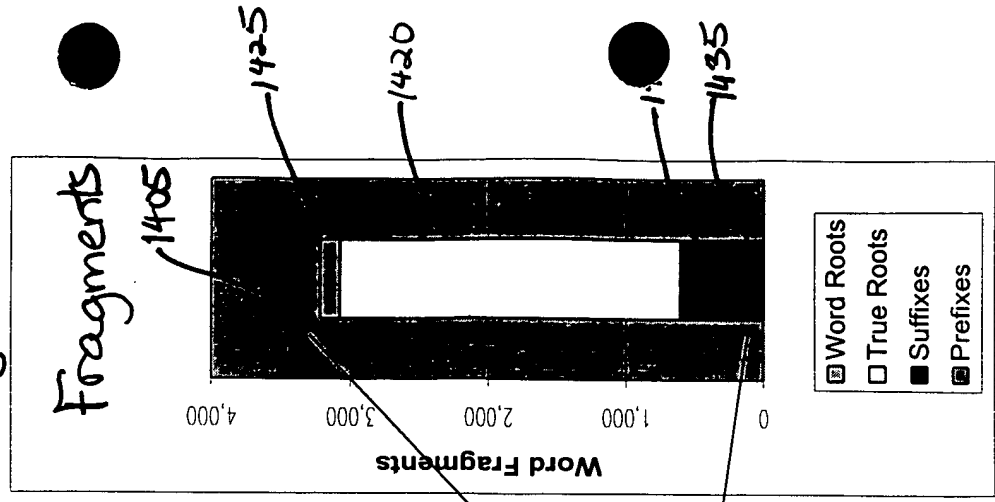


Fig. 15A

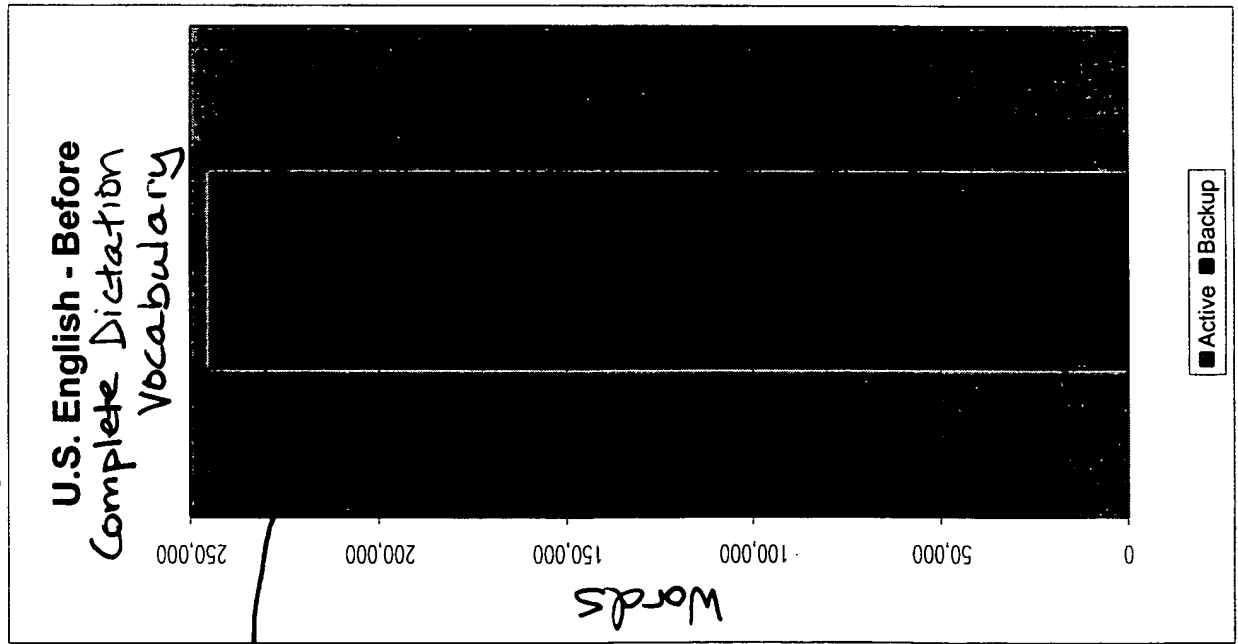


Fig. 15B

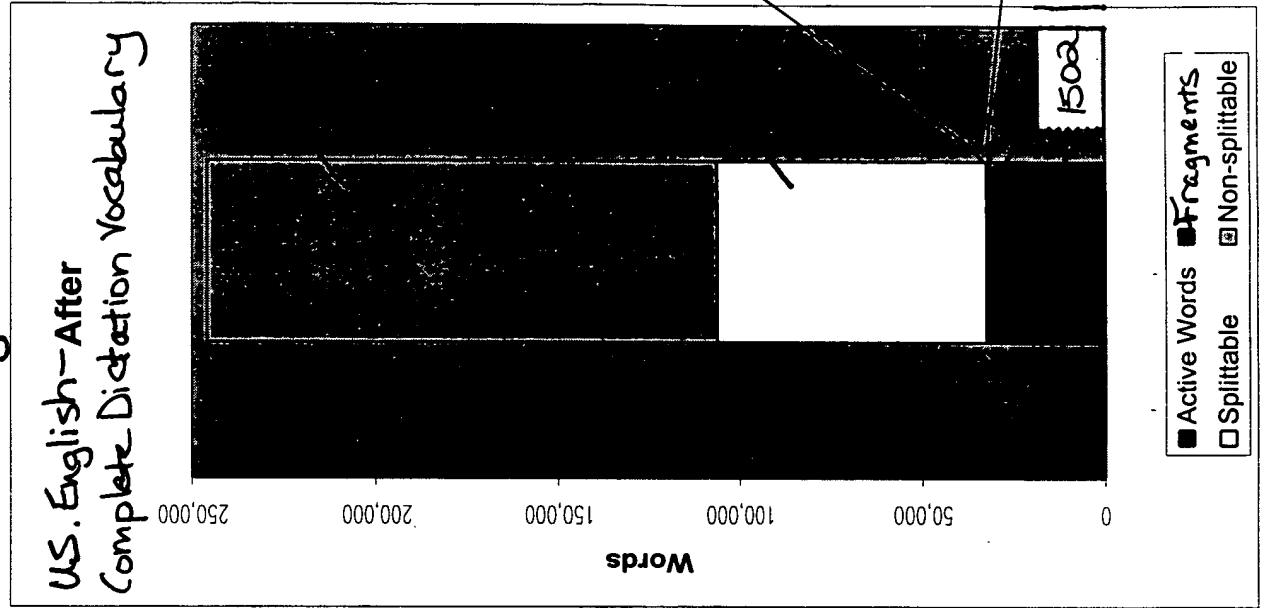
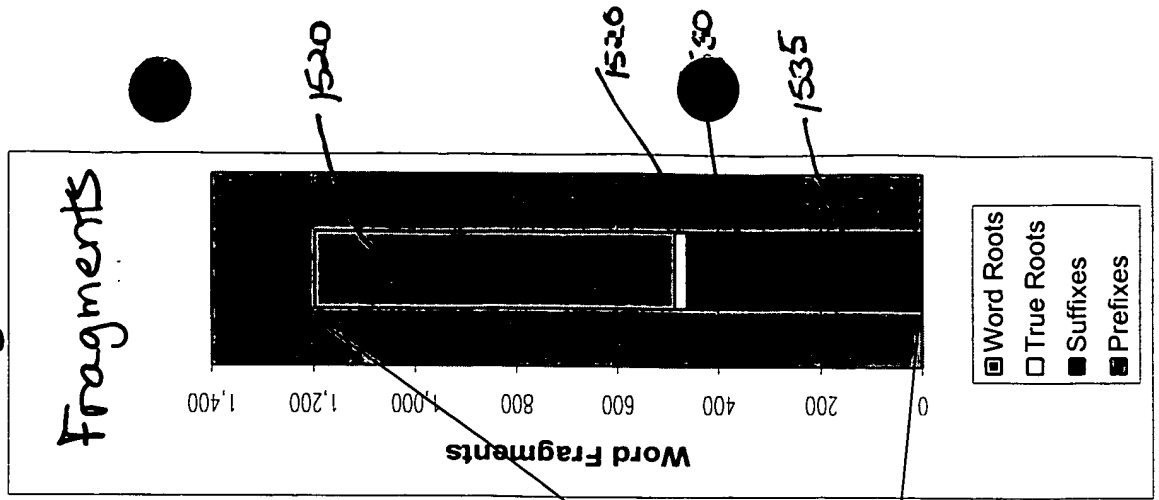


Fig. 15C



1600

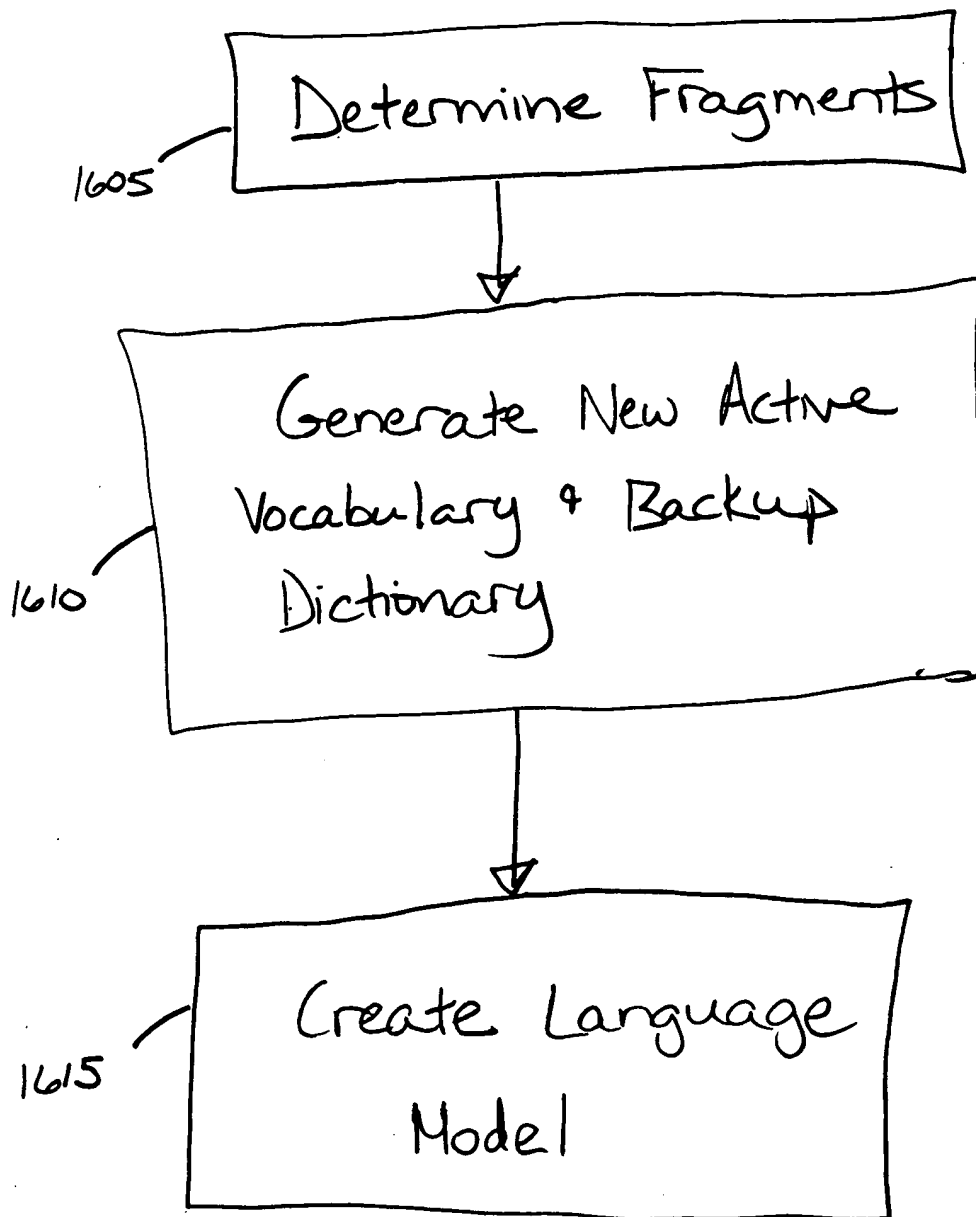


Fig. 16A

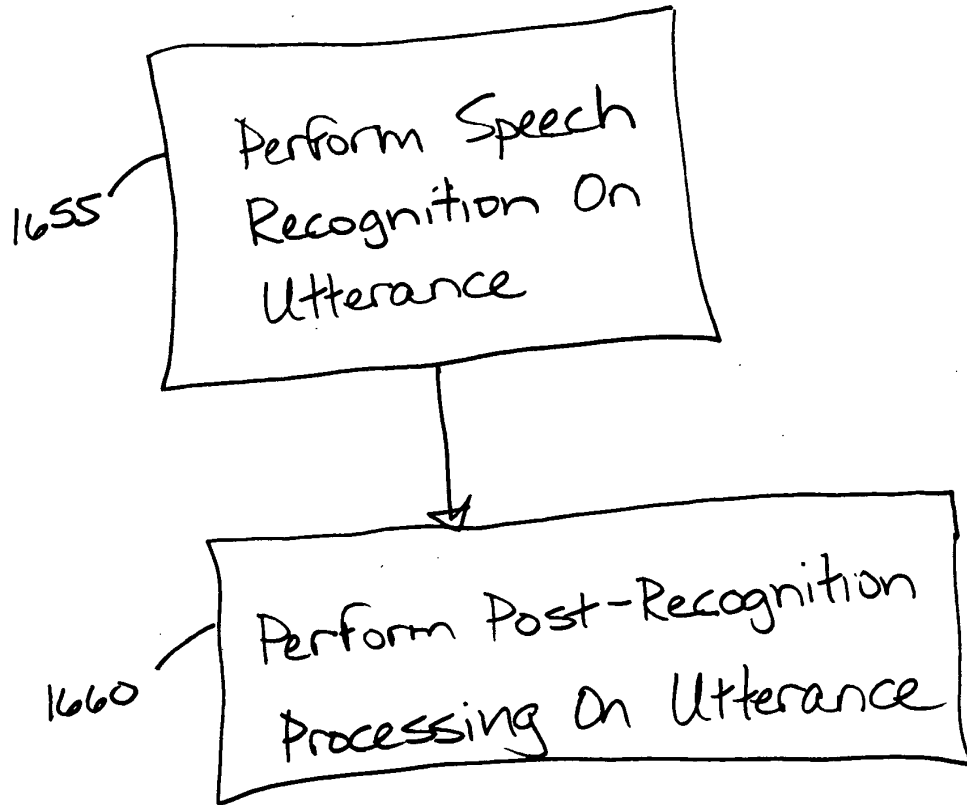


Fig. 16B

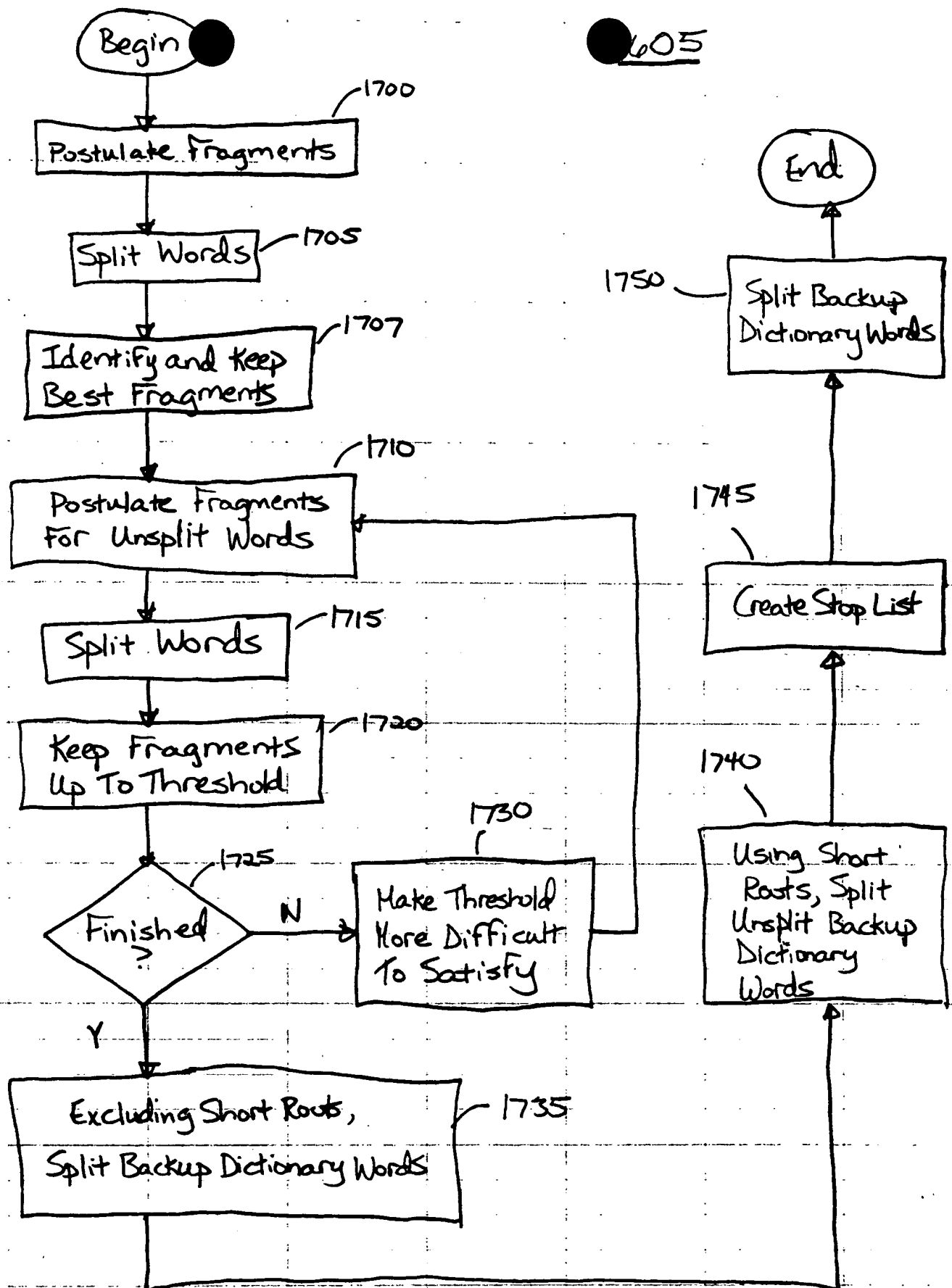


Fig. 17

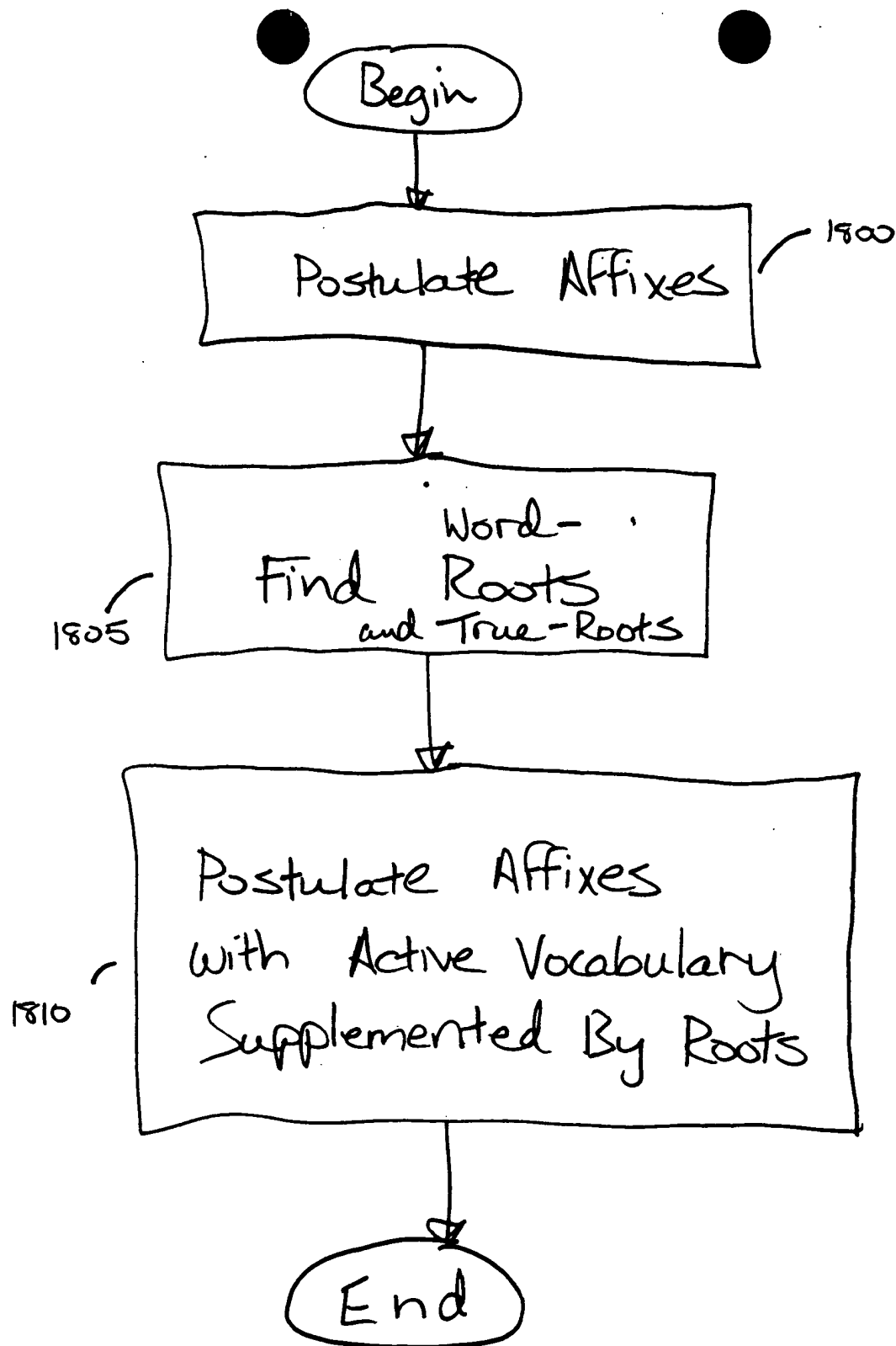


Fig. 18

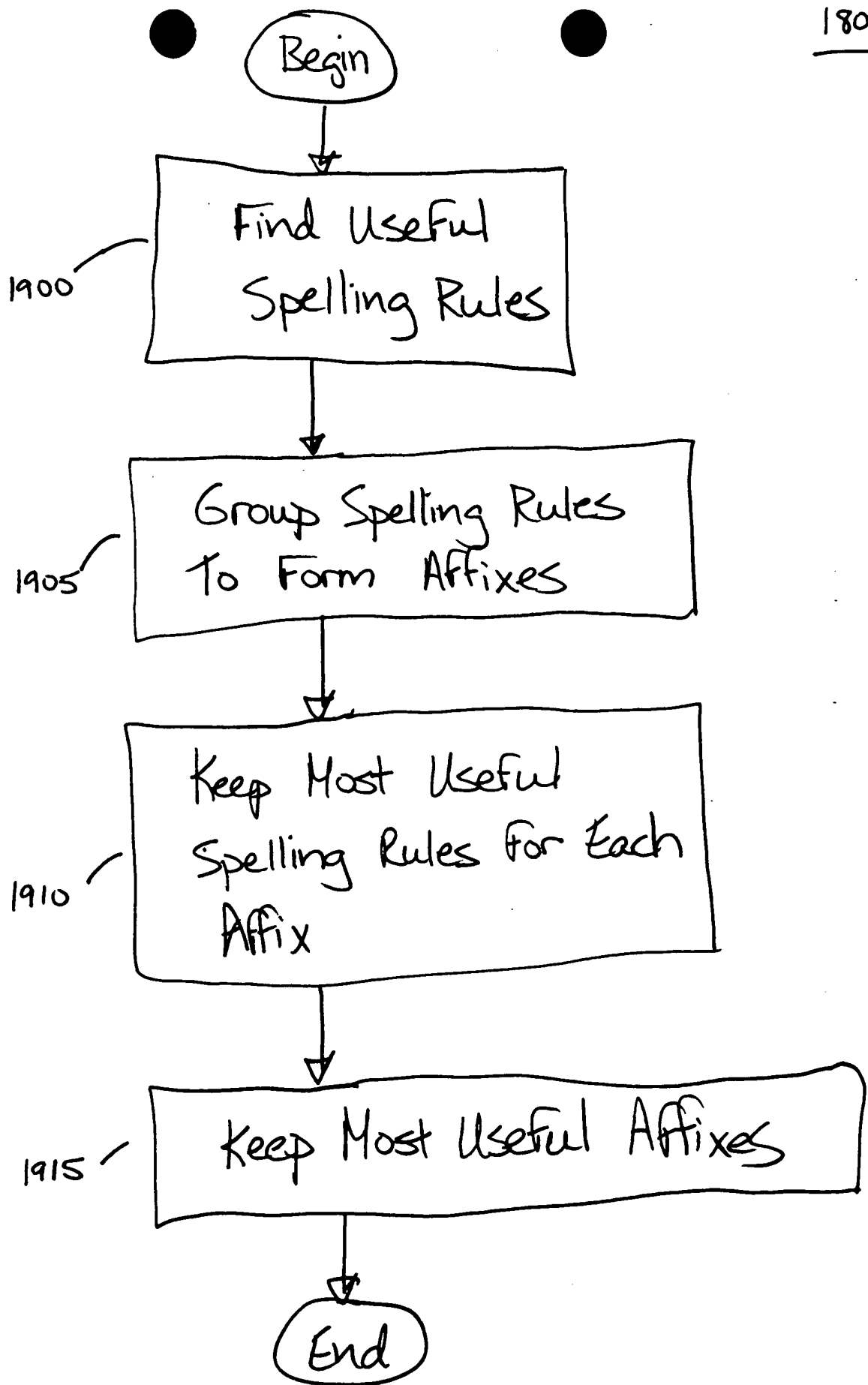


Fig. 19

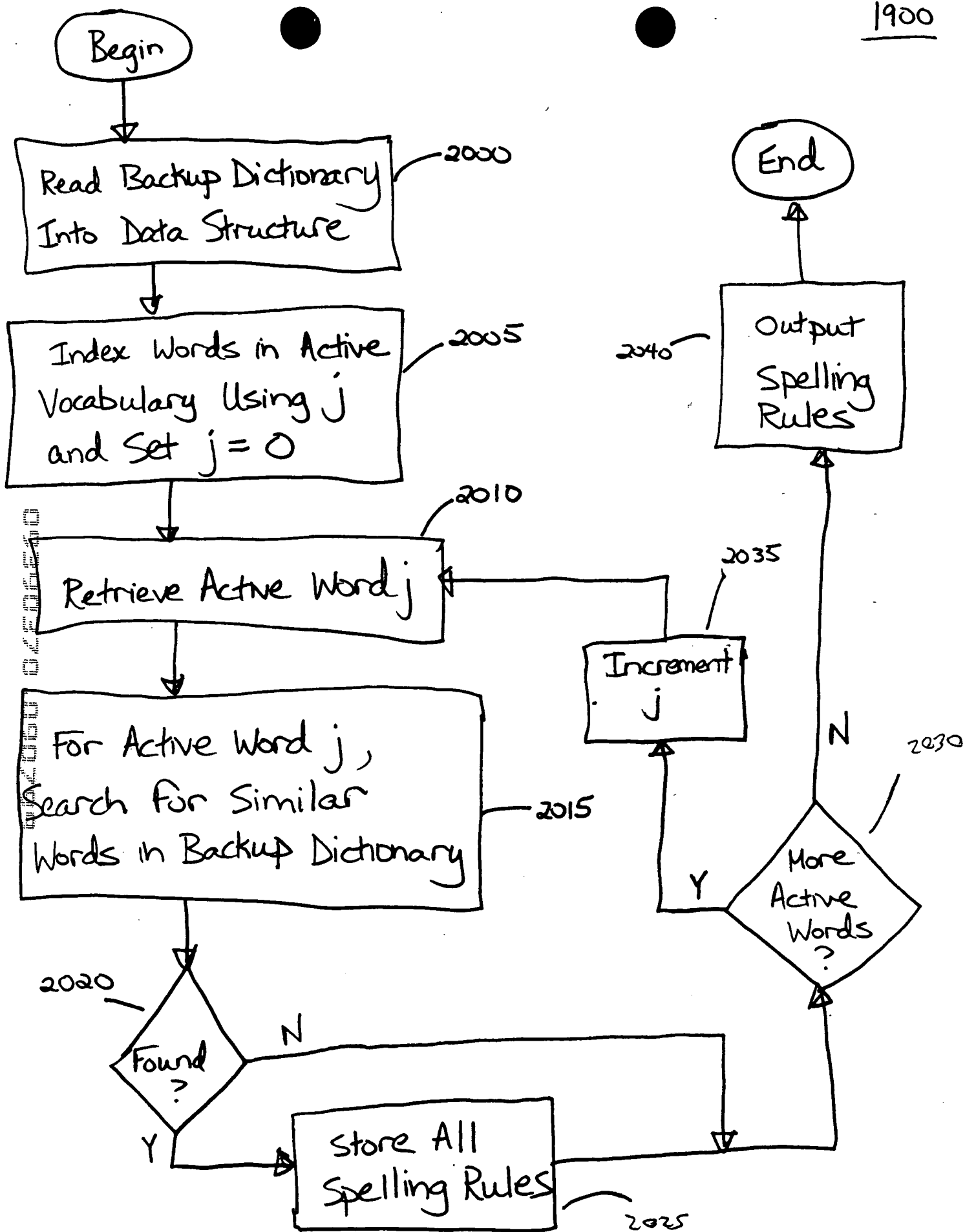


Fig. 20

662066 0206660

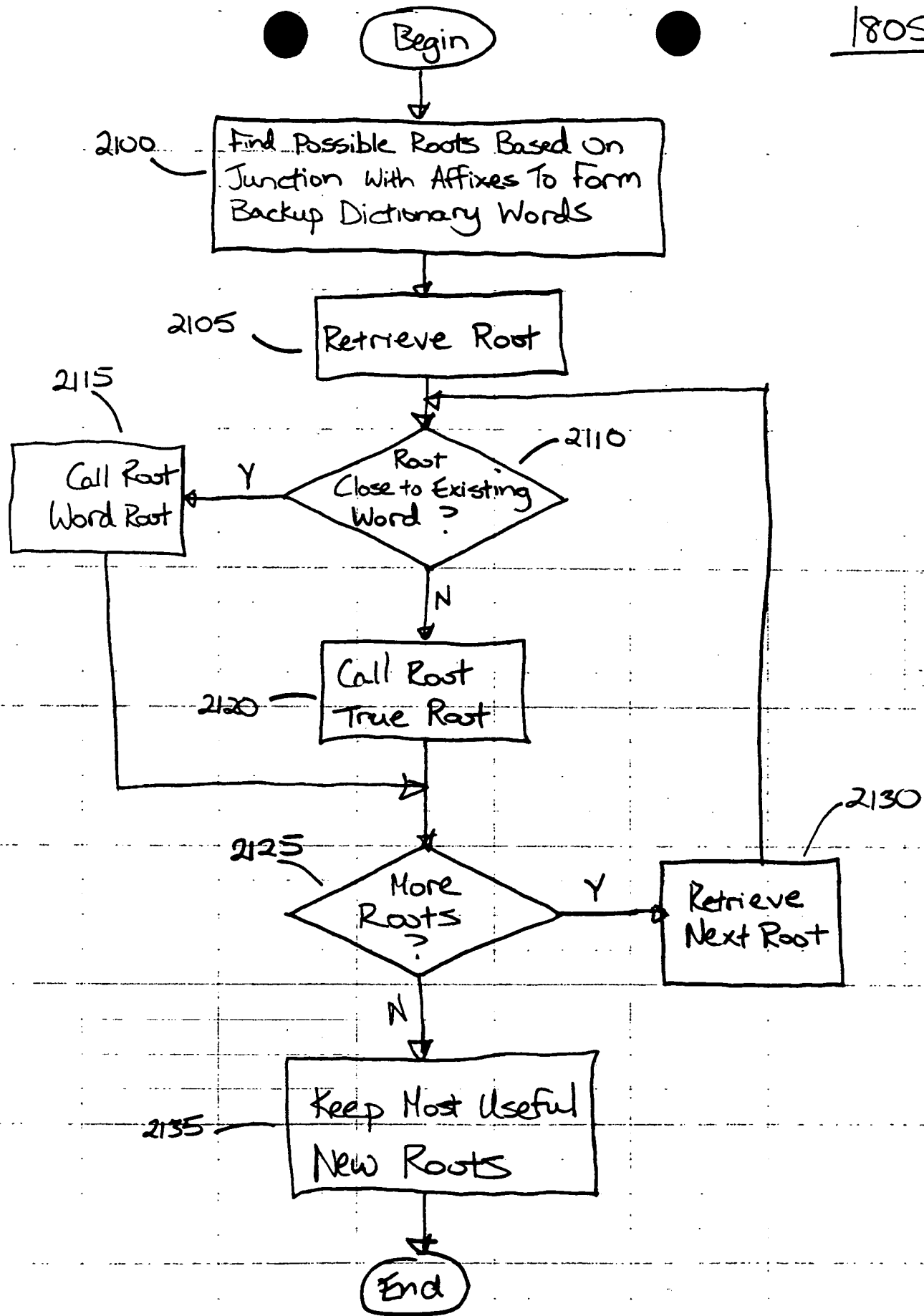


Fig. 21

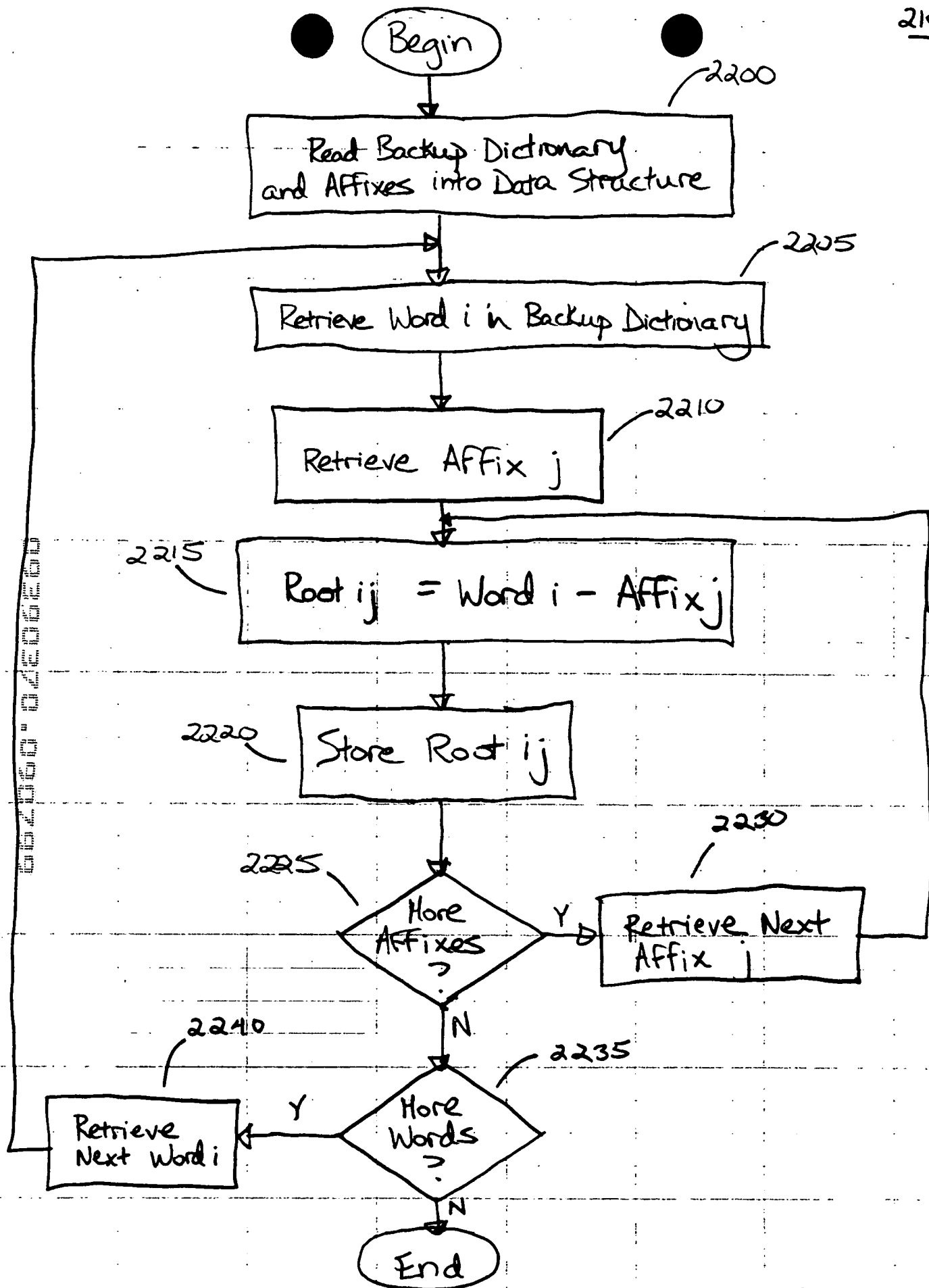


Fig. 22

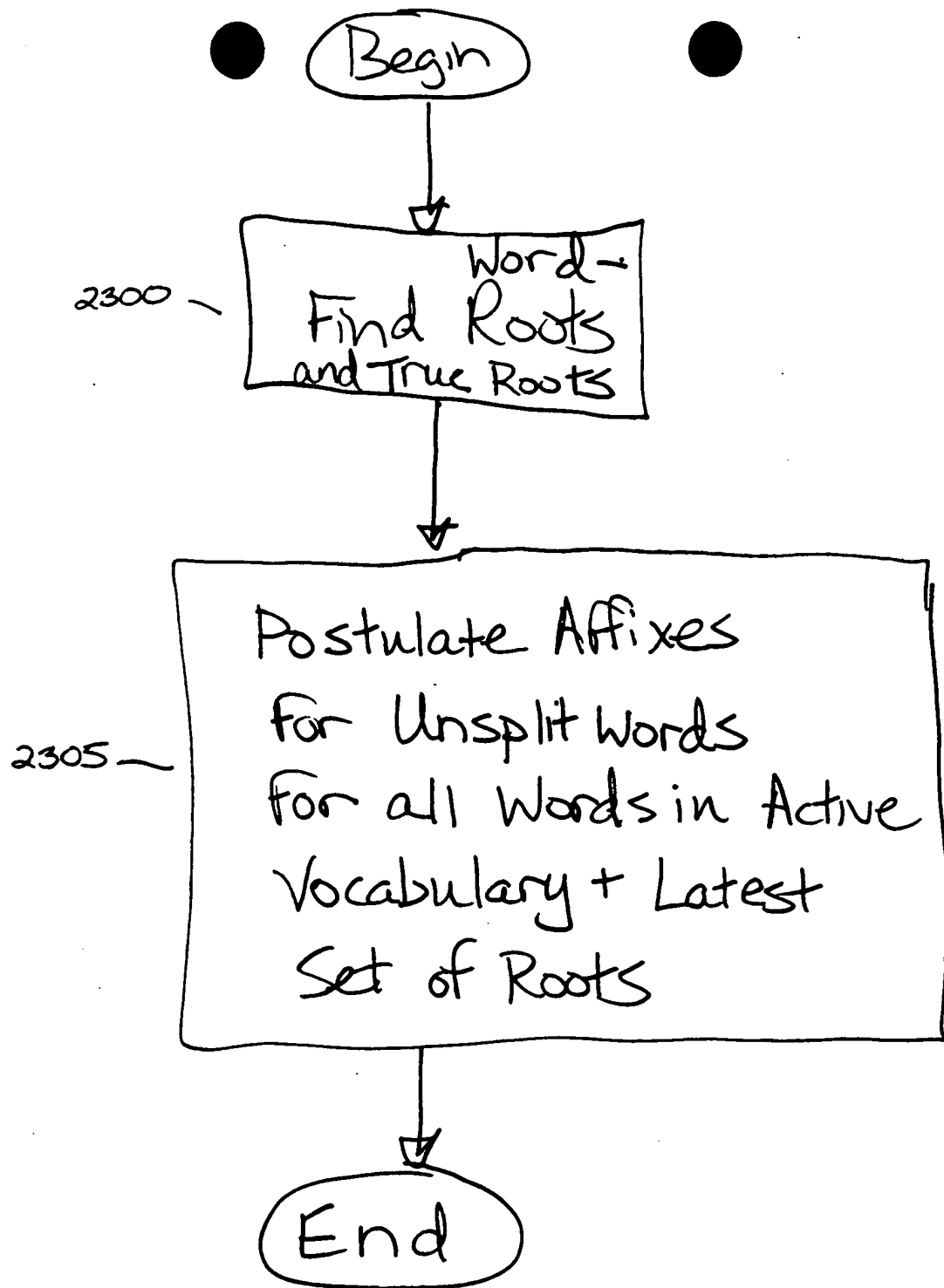


Fig. 23

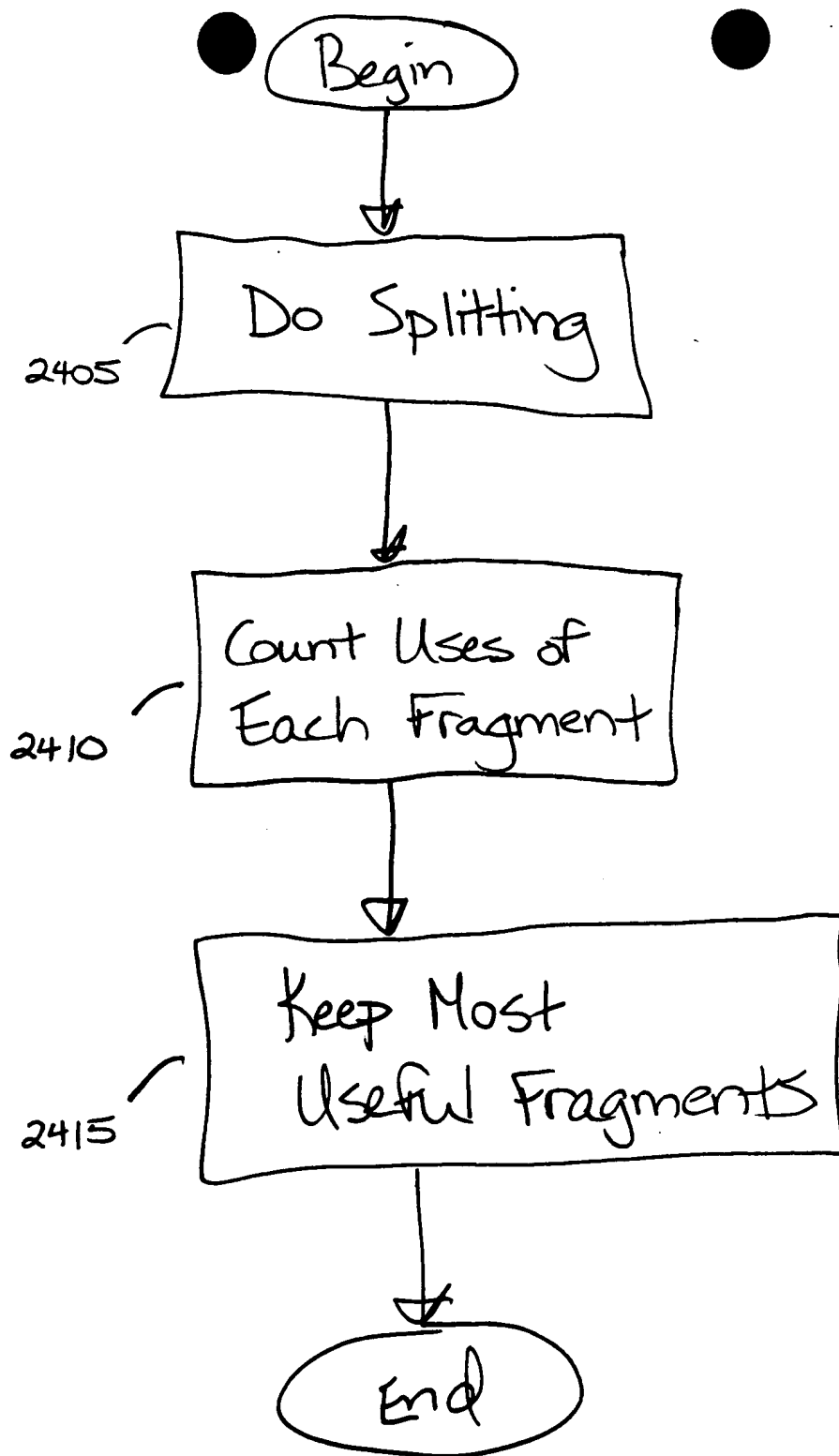


Fig. 24

664060 020660

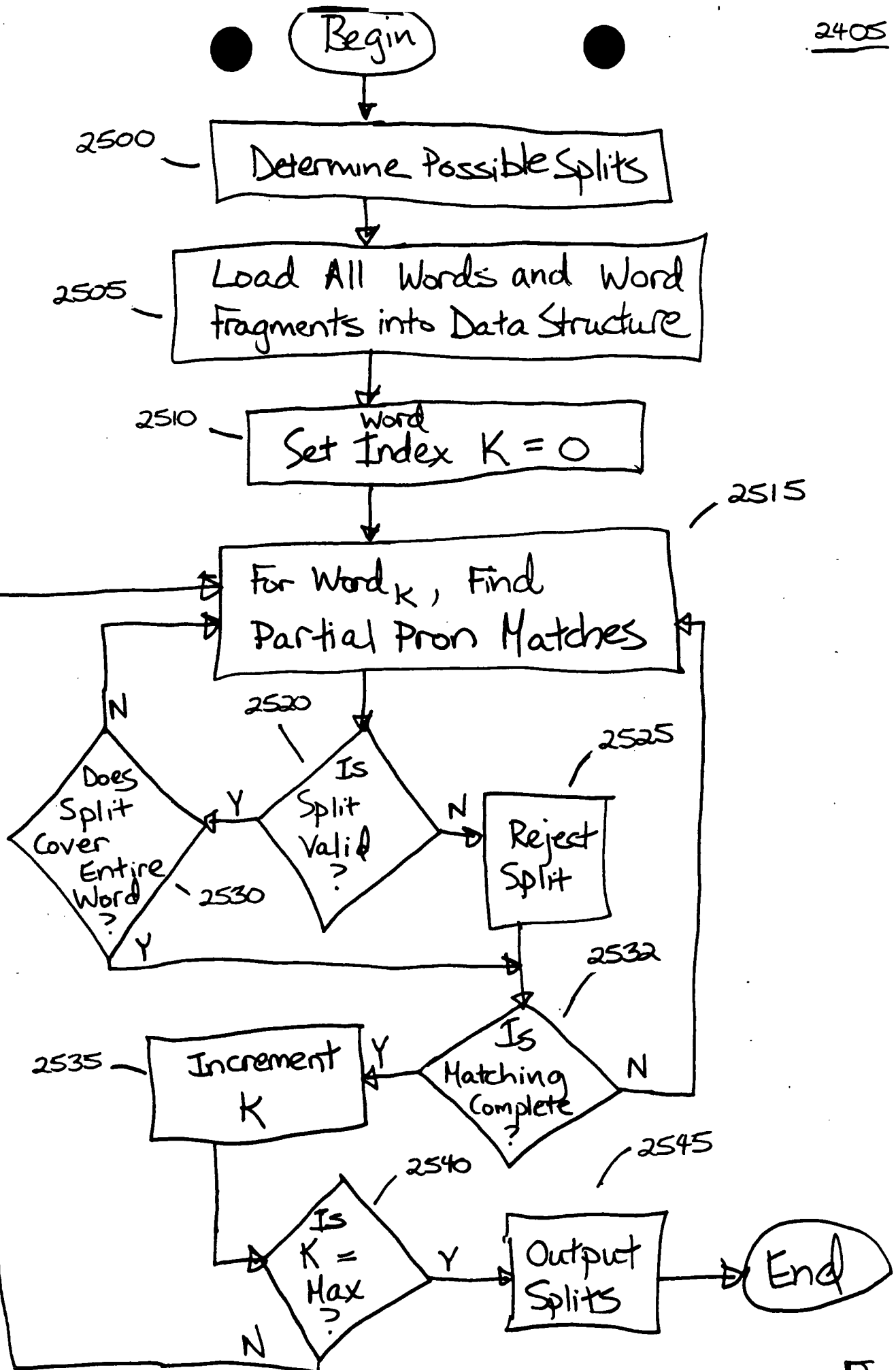
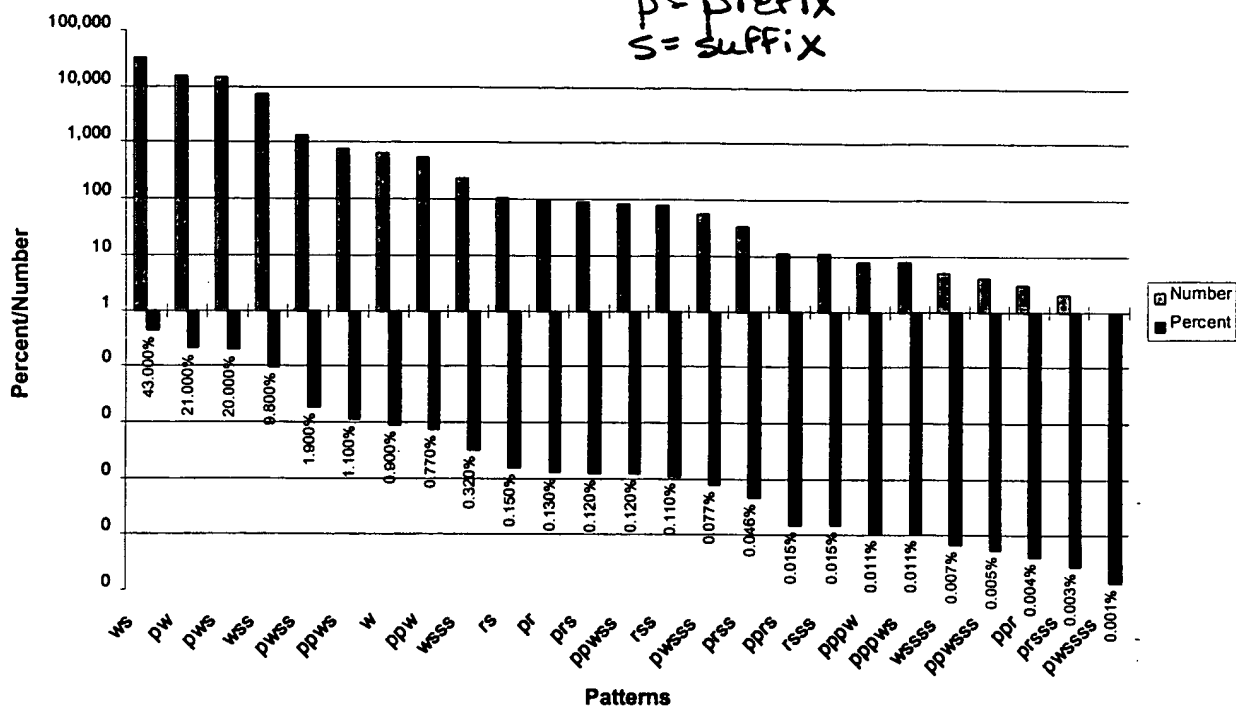


Fig. 25

Patterns

w = word root
r = true root
p = prefix
s = suffix



2600

Fig. 26

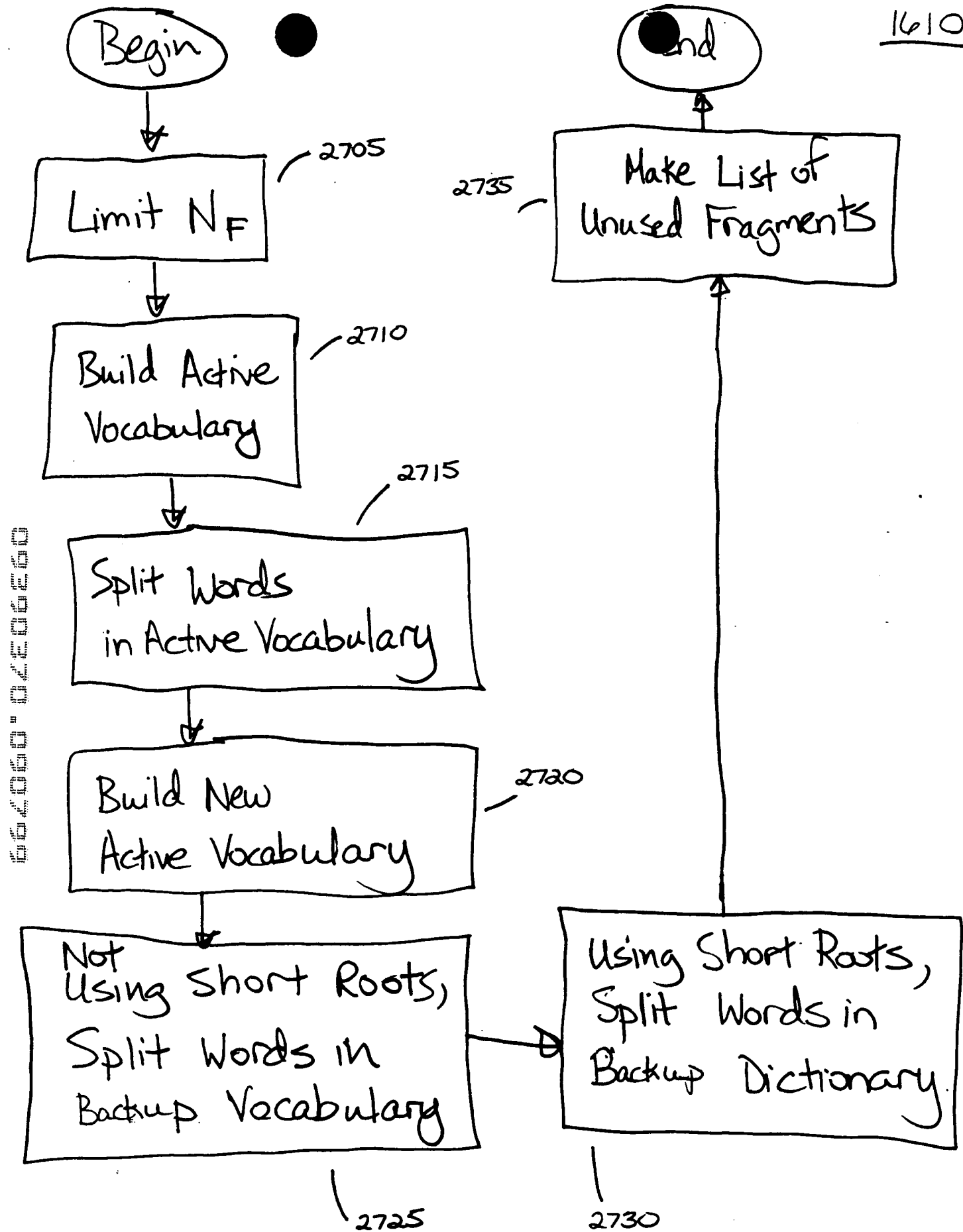


Fig. 27

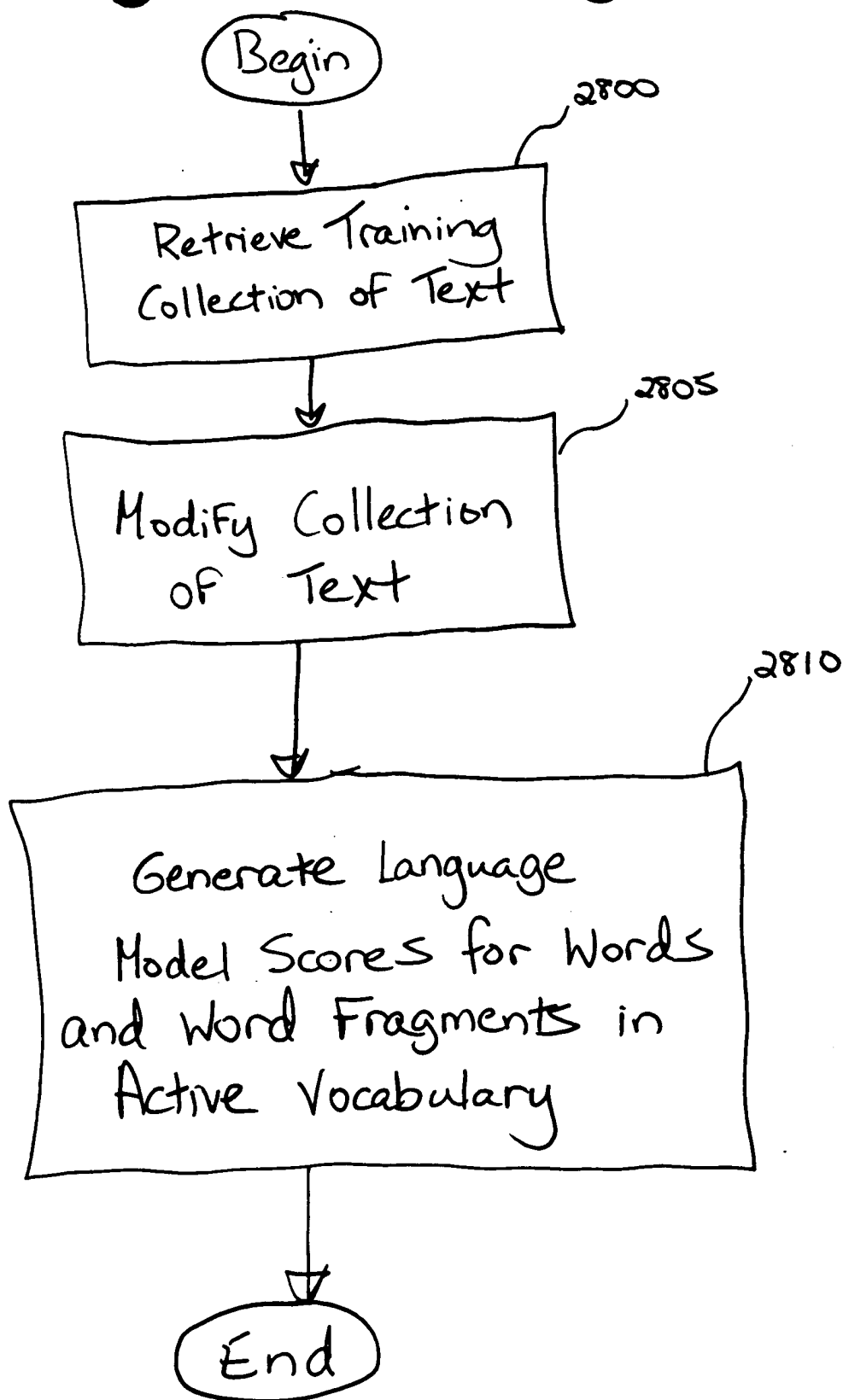


Fig. 28A

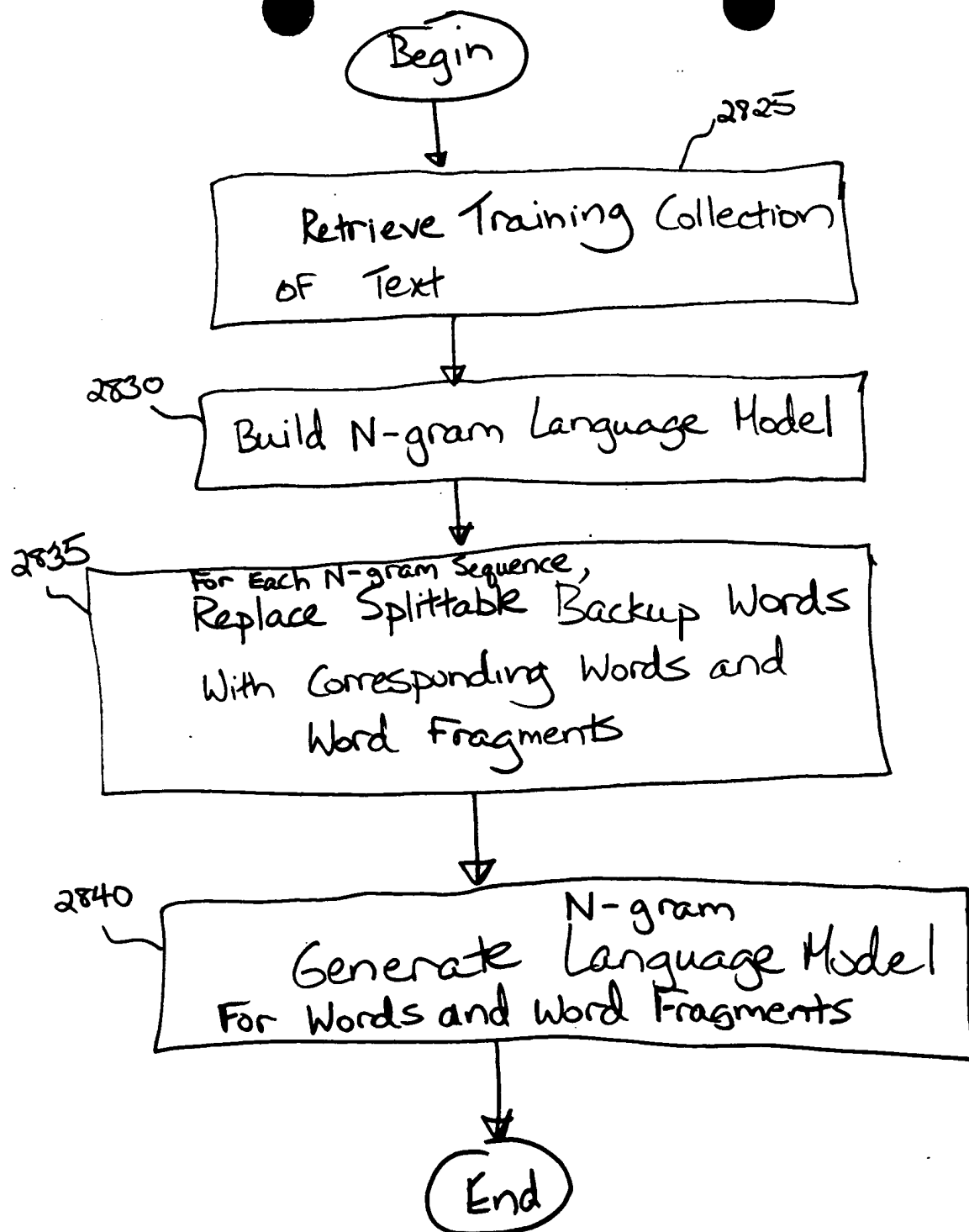


Fig. 28B

THE UNIVERSITY OF CHICAGO

Collection of Text

will urgently go where

to quickly go over

Modified Collection of Text

will urgently go

quick +ly go over

will	=	3550
urgently	=	500
go	=	5100
where	=	3700
to	=	4900
quickly	=	350
over	=	850
∴		

will	$= 3550 + N_{\text{will}}$
urgent	$= 500 + N_{\text{urgent}}$
+ly	$= 500 + 350 + N_{\text{ly}}$
go	$= 5100 + N_{\text{go}}$
where	$= 3700 + N_{\text{where}}$
to	$= 4900 + N_{\text{to}}$
quick	$= 850 + N_{\text{quick}}$
over	$= 850 + N_{\text{over}}$
∴	

Unigram Language Model

Fig. 28C

Collection of Text

2851

... will urgently go where ... to quickly go over ...

2854

... will urgent tly go where ...

Modified Collection of Text

2855

... to quick tly go over ...

2877

will urgently = 250
urgently go = 200
go where = 600
to quickly = 150
quickly go = 100
go over = 400
...

will urgent = 250 + N_{willurgent}
urgent tly = 200 + N_{urgent tly}
tly go = 200 + 100 + N_{tlygo}
go where = 600 + N_{go where}
to quick = 150 + N_{toquick}
quick tly = 100 + N_{quick tly}
go over = 400 + N_{go over}
...

2875

Bigram
Language
Model

Fig. 28D

Collection of Text

Whenever I find myself growing grim about the mouth; whenever it is a damp, drizzly November in my soul; whenever I find myself involuntarily pausing before coffin warehouses, and bringing up the rear of every funeral I meet; and especially whenever my hypos get such an upper hand of me, that it requires a strong moral principle to prevent me from deliberately stepping into the street, and methodically knocking people's hats off- then, I account it high time to get to sea as soon as I can.

Modified Collection of Text

When +ever I find my +self grow +ing grim about the mouth; when +ever it is a damp, drizzle +ly November in my soul; when +ever I find my +self in+ voluntarily pause +ing before coffin ware +house +es, and bring +ing up the rear of every funeral I meet; and e+ special +ly when +ever my hypos get such an up +er hand of me, that it require +s a strong moral principle to pre+ vent me from deliberate +ly step +ing into the street, and methodical +ly knock +ing people's hats off- then, I account it high time to get to sea as soon as I can.

Fig. 28E

Active Vocabulary Element	Unigram Frequency
when	4
+ever	4
I	5
find	2
my	4
self	2
grow	1
+ing	5
drizzle	1
+ly	4
method	1
:	:

2880

Fig. 28F

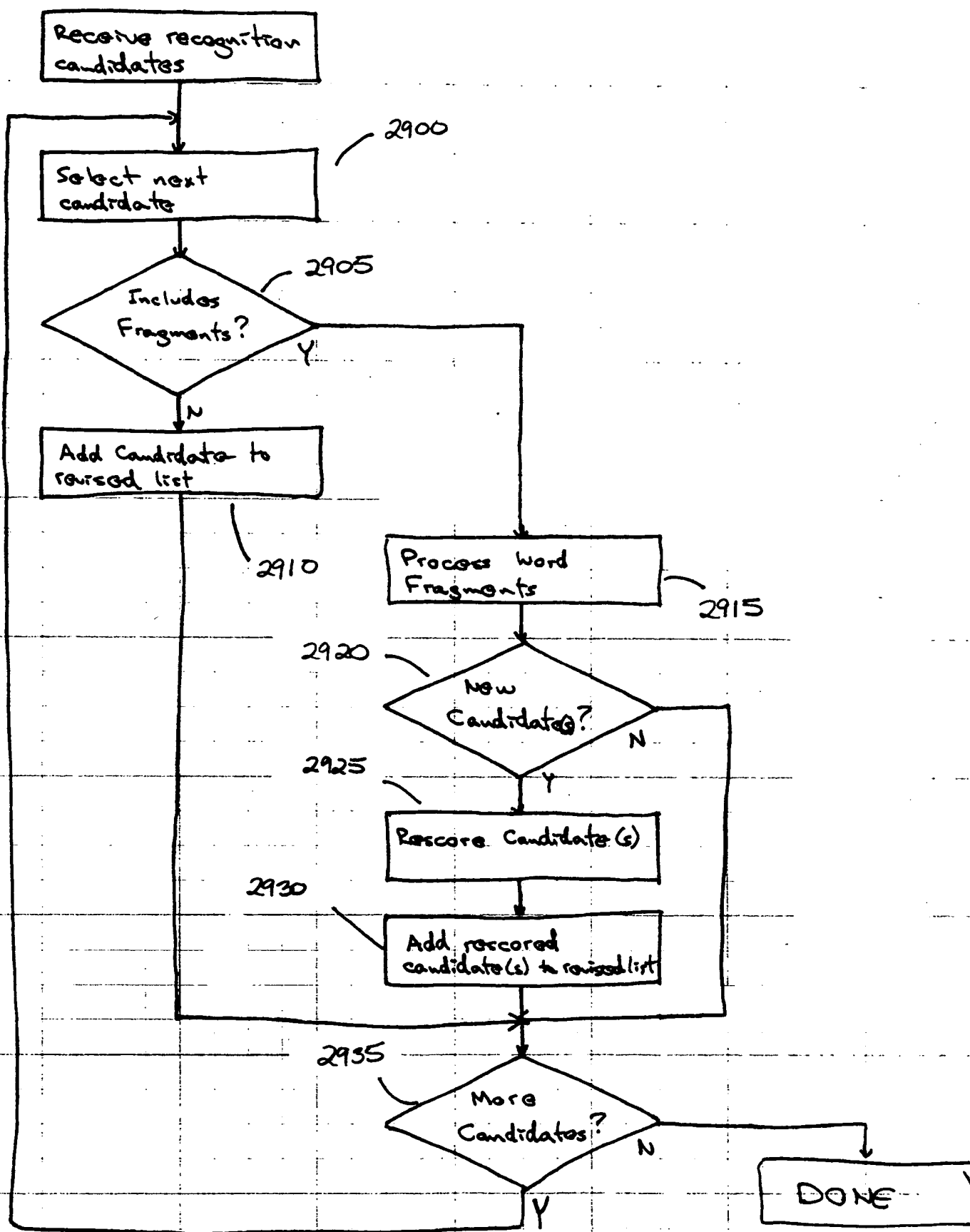


Fig. 29

Fig. 30

